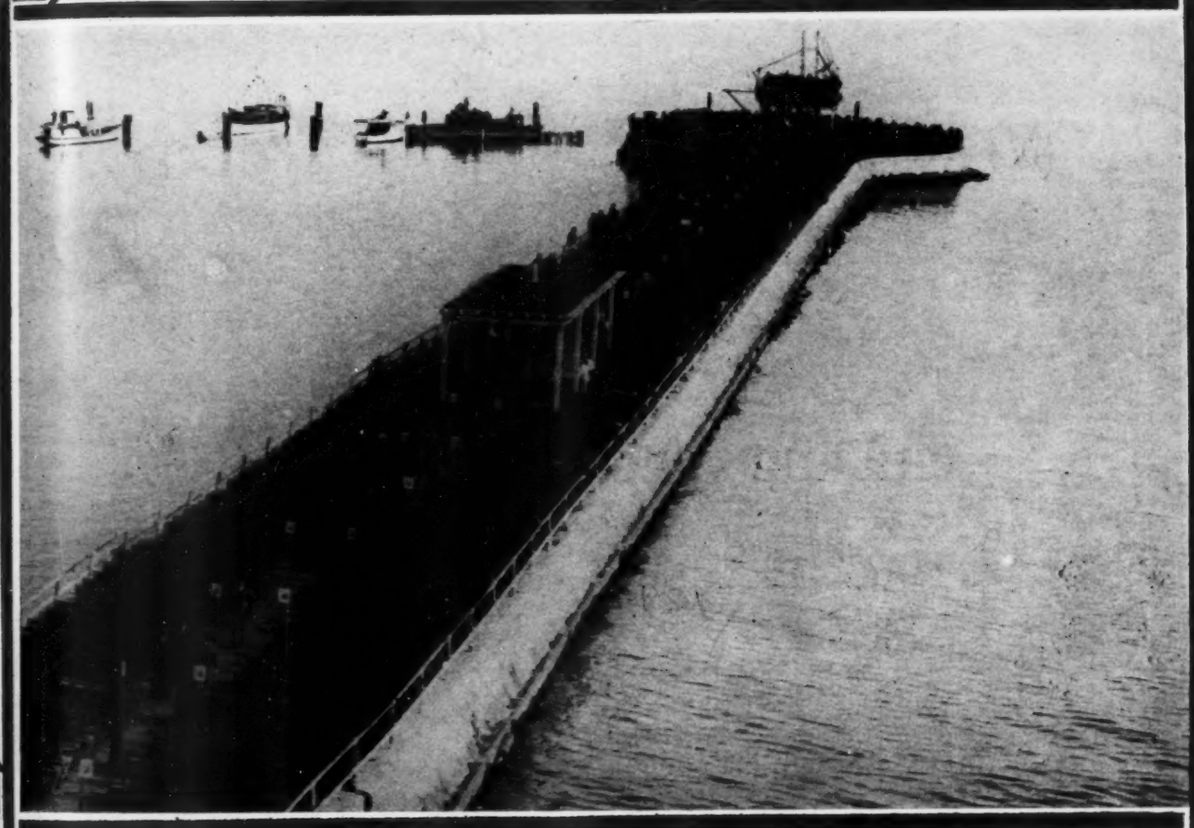
THE BALTIMORE SEAPLANE RACES

AVIATION

The Oldest American Aeronautical Magazine

NOVEMBER 3, 1924 Issued Weekly PRICE 10 CENTS



Early morning view of the pier grandstand at the Baltimore air meet

VOLUME XVII

NUMBER 18

SPECIAL FEATURES

13 RECORDS MADE AT BALTIMORE

C. G. GREY'S BALTIMORE IMPRESSIONS

ARMY AIR SERVICE ESTIMATES $23,000,000

FLYING FROM ENGINEERING STANDPOINT

GARDNER PUBLISHING CO., INC.
HIGHLAND, N. Y.
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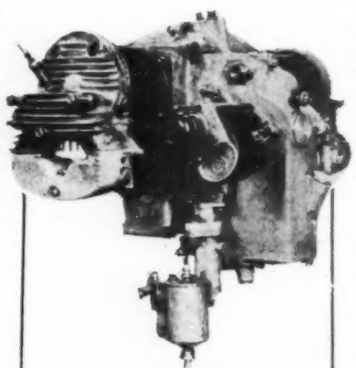

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NOVEMBER 3, 1924

AVIATION

VOL. XVII. NO. 18

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CONTENTS

Editorials	1217	Flying from an Engineering Standpoint	1224
Navy Sets 13 New Records at Baltimore	1218	A Real Christmas Present	1227
The Baltimore Seaplane Meet	1221	Wright Corpn. Names its Engines	1227
Army Air Service Estimates $23,000,000	1223	Airports and Airways	1228
Government Bids and Awards	1223	United States Air Forces	1231

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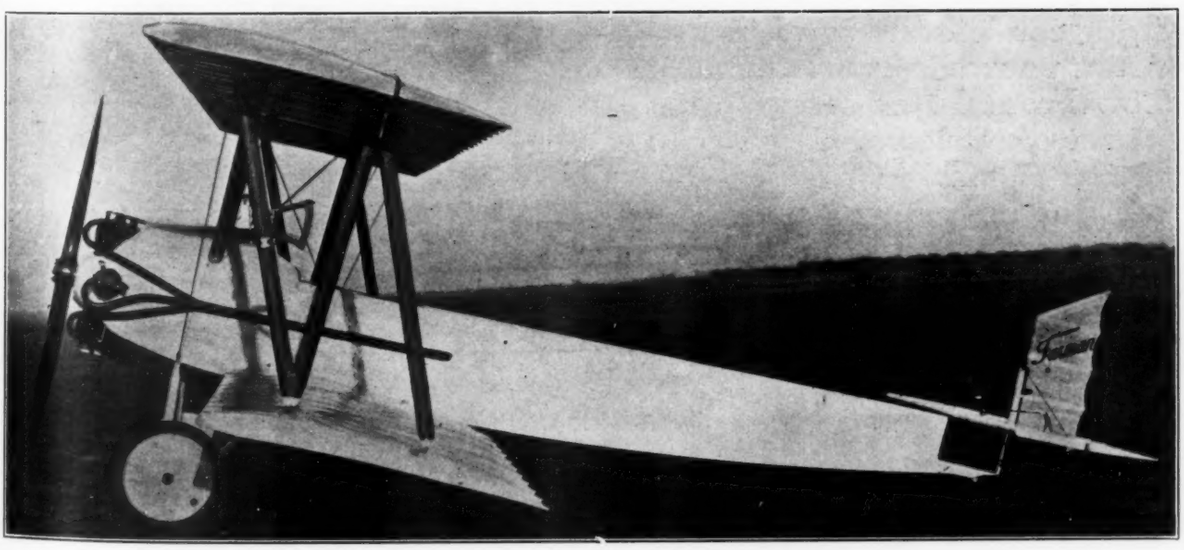
FARMAN

SPORT PLANES



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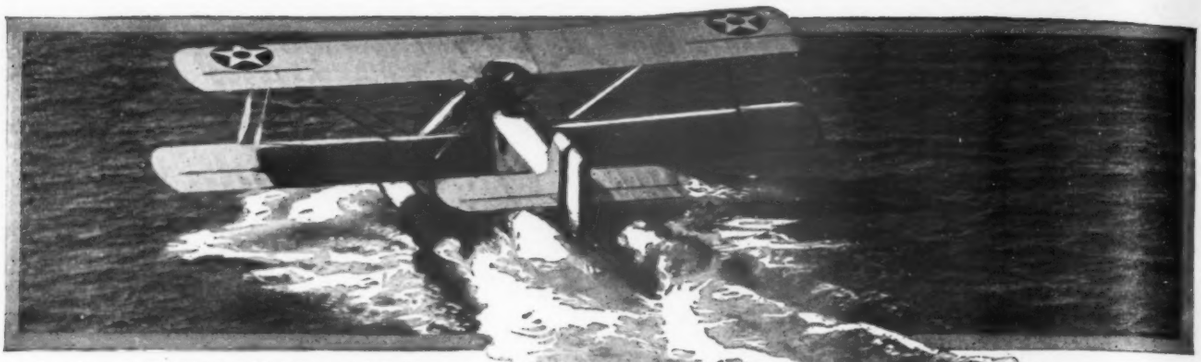

U. S. Navy CS-2, a Standard Navy Service job known as a 3-purpose plane (A) long distance scouting, (B) Torpedo plane, (C) bomber

The CS-2 powered with a Wright T-3 engine recently broke five world's records for seaplanes (1) duration in hours, (2) non-stop flight in miles, (3) speed for 500 km. (310.5 mi.), (4) speed for 1000 km. (621.0 mi.), (5) speed for 1500 km. (931.5 mi.).

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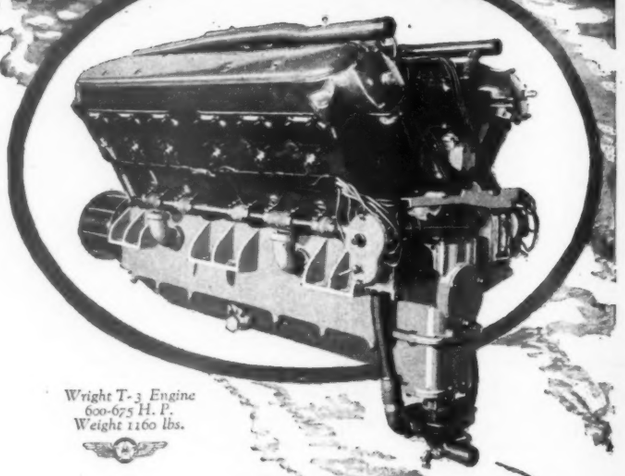

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VOL. XVII NOVEMBER 3, 1924 No. 18

Political Expansion and Aircraft

RECENT newspaper dispatches state that the Russian and Japanese governments have signed an agreement regarding the organization of an airway service from Leningrad (Petrograd) to Tokyo. Thus the foundation is laid for a huge airway which will afford aerial transportation from the Baltic Sea to the Pacific Ocean, crossing the continent of Asia in its greatest width, and linking up by air Europe with Japan.

AVIATION has more than once called attention to the vast air expansion schemes Russia intends to carry out with the technical assistance of German experts. Some of these plans have already materialized. What aerial transportation means to a country like Russia, where railroad service is extremely poor, is seen from the fact that the aerial trip from Stockholm, Sweden, to Teheran, Persia, is made in three days whereas three weeks are required by steamer and train.

However, it is the political angle of the Russian airway services which deserves particular attention, for all of the air lines organized or planned so far by the Soviet government clearly indicate the political aim behind them. The air line from Moscow to Koeningsberg, the first in date to be organized, linked up Russia with Germany. Then followed the Moscow-Rostoff-Tiflis airway, which brought Russian aircraft to the Turkish border on one side, and to the Persian on the other. This line has now been extended in the North to Stockholm, Sweden, and in the South to Teheran, the capital of Persia. A third "political airway" which is in course of organization will connect Moscow with Turkestan, and will give Russia the mastery of air routes toward Afghanistan and the Indian frontier. The trans-Siberian airway which is now being planned will complete Russia's great air expansion scheme and bring about a gigantic German-Russian- Japanese air combine which will almost have a monopoly of aerial communications between Europe and the Far East.

The great political significance of this latest move deserves serious attention on the part of those entrusted with our own air power. The fact that bankrupt Russia, aided by semi-bankrupt Germany, is able to carry out such gigantic air plans should be a warning to us not to doze off on the accomplishment of our transcontinental Air Mail Service. As we have repeatedly urged in these columns, the Air Mail should not only be pushed to the Gulf and to the West Indies, but further extended to Central and South America. There may not be at present any important economic demand for such airways. Even so, these airways should be created, for the position of the United States in the world emphatically demands that we support our political influence with every means available. And a commercial aircraft service affording rapid communications with Central and South America will be one of the most effective agents for spreading our influence south of the Rio Grande, beside opening new markets to our aircraft industry.

When it is considered that at least a year will be required to organize an airway to Mexico and Panama, and two years or more for pushing it South toward Chile and the Argentine Republic, the urgency of drawing up some plan to that effect becomes obvious. If we had an Air Department, attention to our aeronautical expansion would naturally be one of its principal duties. But no such department exists in this country, and the political and economic possibilities of aircraft concern, strictly speaking, neither the Army, nor the Navy, nor the Air Mail. The writing on the wall is rather obvious.

The Effect of Tax Publicity

THE effect on every trade and industry of the sudden publication of the income taxes of persons and corporations will receive the closest attention. Various interpretations can be given to the probable influence that such revealing figures may have.

First and foremost they will show vaguely just what profits the units of the so called aircraft industry have made and the alleged profits that have been made by individual constructors. The public will then know whether the slanderous statements that have been circulated have been a malicious fabrication or not. As the intent of this publicity law was, primarily, to give Congressional Committees the privilege of making public the financial operations of corporations and persons, it may be expected that the income tax statements of all aircraft companies and their owners will be one of the matters discussed openly by the Lampert Committee.

Looking to the future, this extraordinary revelation of the most intimate details of personal and business affairs may solve the difficulty of letting contracts for aircraft. Heretofore bidding has been required for production orders of aircraft by both Services. While the government has had access to the books of contractors, the resulting earnings or losses have not been available to the trade. If an aircraft company made large profits on a contract, there has been an undercurrent of resentment by and against contracting officers. This has led to a reluctance to negotiate contracts at a fixed price and a strong tendency toward open bidding.

Now, with the approximate financial results of the companies available to competitors, the English plan of letting contracts can be considered. There, the government gives orders to aircraft constructors at a price which appears reasonable and not the result of cut-throat competition. If the contractor should make excessive profits or losses, it is taken into consideration in his next order so that in the end all the aircraft companies are kept in a healthy condition. Heretofore this plan has been considered impracticable owing to the general law requiring open bidding. With the tax figures available to all, this policy may be modified to such an extent that the suicidal bidding prices of companies in desperate need of orders will not break down the aircraft industry.

Navy Sets 13 New Records at Baltimore

Most Successful Naval Seaplane Race Meet Ever Held

THE THIRTEEN RECORDS

So far as possible the records broken and made at Baltimore have been checked. Subject to further verification, the following records are given.

1. *Maximum speed, Lieutenant Cuddihy, (CR), 302.76 km./hr.*
2. *Speed, 100 km., Lieutenant Ofstie, (CR), 286.86 km./hr.*
3. *Speed, 200 km., Lieutenant Ofstie, (CR), 286.86 km./hr.*
4. *Speed, 500 km., Lieutenant Ofstie, (CR), 259.33 km./hr.*
5. *Duration, load 1000 kg., Lieutenant Henderson, (PN71), 5 hr. 28 min. 43 sec.*
6. *Distance, Lieutenant Henderson, (PN71), 400 km.*
7. *Speed, 100 km., Lieutenant Henderson (PN71), 126.345 km./hr.*
8. *Speed, 200 km., Lieutenant Henderson (PN71), 126.345 km./hr.*
9. *Duration, load 2000 kg., Lieutenant Hardison (PN72), 1 hr. 49 min. 11.9 sec.*
10. *Distance, Lieutenant Hardison, (PN72), 100 km.*
11. *Speed, 100 km., Lieutenant Hardison (PN72), 110.08 km./hr.*
12. *Distance, load 1500 kg., Lieutenant Hardison (PN72), 150 km.*
13. *Speed, load 1500 kg., 100 km., Lieutenant Hardison (PN72), 110.39 km./hr.*

Someone was overheard to say at the air meet held in Baltimore on Saturday, Oct. 26, about the city that "it showed the smartness of the Yankee and the hospitality of the South." That expresses concisely the impression created by the conduct of The Baltimore Navy Seaplane Races under the management of the Flying Club of Baltimore in cooperation with the Naval Air Committee of the Bureau of Aeronautics of the Navy.

About two years ago when AVIATION was asked for advice about a meet to be held in Baltimore, it volunteered the suggestion that the next Schneider Cup Race could be held in Baltimore if the active Flying Club there would take prompt action and make application for the event. The suggestion was followed and while the withdrawal of foreign entries prevented the holding of the contest this year, it did lead to the holding of a meet where world records were surpassed and created with such rapidity that it will take a careful searching of existing records and much checking before the complete results are known.

The Sponsors

To R. W. Alexander, President of the Flying Club of Baltimore and Maj. William D. Tipton is due the greatest appreciation for the success of the air races. Mr. Alexander secured the approval of the N.A.A., the cooperation of the Navy and arranged for the financing of the races. Major Tipton who has been the Secretary of the Club for several years was in active charge of all the local arrangements and seemed to be the mainspring of the smooth running machine that carried out the program. W. Frank Roberts, now Chairman of the Board of the Club assisted as he has always done by securing the use of Bay Shore Park for the meet. Lewis R. Lemke, Treasurer of the Club, held the purse strings as well as the passes and looked after both, so that there were neither shortages nor extravagances. Every member of the Club seemed to feel that it was his particular pleasure to make every visitor have a good time as well as see a most interesting series of seaplane events.

The Setting

Through the courtesy of the United Railways and Electric Company, the amusement resort Bay Shore Park was loaned to the Flying Club for the month of October. This borders on Chesapeake Bay about 14 mi. from Baltimore and is an ideal site for seaplane racing. A long pier extending out into the Bay made a perfect grandstand from which every event could be seen, many from directly below. While it is estimated that between ten and fifteen thousand people came to the Park to witness the day's program, there was plenty of room for all. The shore was crowded with civilian seaplanes that were given every opportunity to be seen by the public and take up any passengers that desired an air ride. Chesapeake Bay is about ten miles wide at this point. With such an expanse of water and a cloudless, sunny day, conditions were perfect for the pilot as well as the visitor.

The Navy Show

With such experienced Naval aviation officers as Capt. Emory S. Land, Lieut. Comdr. M. A. Mitscher, Lieut. F. W. Wead, Lieut. Comdr. H. B. Cecil, Lieut. W. D. Thomas, Lieut. T. T. Patterson and Lieut. Col. T. C. Turner of the Marine Corps in charge of the Navy's program, every event was run with the most approved naval proficiency. When it was learned that the Schneider Cup Race would have to be postponed for another year, the Bureau of Aeronautics decided to give the hospitable Flying Club of Baltimore a show that would be remembered by every visitor. Not only did they provide thrills and contests of skill but they did not attempt to put the whole affair under service discipline as the Army did at Dayton. The Monitor Cheyenne took the guests of the Club from Baltimore to the Park. True naval courtesy was shown on every side and every visitor left Baltimore with a clear impression of gratitude to the Navy for its splendid effort.

The Races

The most important of the dozen events was the race between the two Curtiss CR3 seaplanes that captured the Schneider Cup last year. The engines were Curtiss D12. They were flown by Lieut. Ralph A. Ofstie and Lieut. G. T.

Naval torpedo and bombing planes at anchor off Bay Shore Park, Baltimore, during the naval seaplane race meet

Cuddihy. The world's seaplane records before this race were as follows:

Maximum speed, 174.07 mi./hr. (Lieut. Alexander Passaleva, Italy. Returing to Point of Departure: 100 km. (England), 129.75 mi./hr.;200 km. (U. S.), 169.89 mi./hr.; 500 km. (U. S.), 73.41 mi./hr.; Schneider Cup Course (U. S.) 169.8 mi./hr.

The two pilots flew the Schneider Cup Course and in addition tried to better the 500 and 3 km. records. Both machines retained their respective distances practically throughout the race which was as perfectly flown as any race ever held in this country. The spectators were placed at the starting pylon so that the start and finish of this and all other races were in clear view. Lieutenant Ofstie broke three world's records in his 500 km. flight. The new records were as follows: 100 km., 176.82 mi./hr.; 200 km., 177.29 mi./hr.; 500 km., 161.13 mi./hr.

The 100 km. record was increased by 47.07 mi./hr., the 200 km. by 7.40 mi./hr., and the 500 km. by 87.72 mi./hr. The latter gain was due to the avoidance of having to land for fuel as heretofore racing seaplanes were unable to carry sufficient gas to enable them to complete the race.

Lieutenant Cuddihy then flew the three kilometer course in his Curtiss racer and made the new world's seaplane record of 189.66 mi./hr., thus increasing the speed by 15.59 mi./hr. The Bureau of Aeronautics thus established with their Curtiss racers of last year four new world's records for speed . It should also be remembered that the new Curtiss racer which was ready for the race was not flown as it is desired to save it for the international contest next year. This seaplane is credited with a speed of over 200 mi./hr.

The records established by Lieut. George Henderson and Lieut. O. B. Hardison in PN7's with Wright T3 engines were so intricate that we refer our readers to the official time sheets. Probably there may be changes when the final figures are available. The tests were most interesting although the flying of these types at slow speeds does not cause the thrill that the speed planes arouse.

It will be obvious that a day that produced thirteen world's records was one that will be long remembered by the aeronautical visitors who came to see remarkable flying.

The Baltimore Sun Trophy Race

This race was for a cup and a prize of $1000. It was open to civilians only and proved to be one of the most exciting and spectacular events of the day. It was won by Edward Nir-

Lieut. G. T. Cuddihy (left) and Lieut. R. A. Offstie

maier in a Curtiss MF with a C6 engine at a speed of 76.18 mi./hr.; W. A. Regan came in second at 74.05 mi./hr.; H. O. Hollingshead came in third and Eddie Keddie was fourth. The race was a handicap affair of 12 laps around a 6.66 mi. triangular course or a total of 80 mi. Although there were only six planes entered the course was short and the planes were in sight of the spectators at all times. Due to the wide difference in speed the ships kept passing each other which added considerably to the excitement especially at the turns. When the Douglas torpedo planes started racing around the same course there was never a dull moment.

The Entrants

Four of the planes belonged to the Rogers Airline. This veteran outfit of commercial pilots have their summer base at Rye, N. Y., and operate about Long Island Sound and Lake George during the summer and at Miami, Fla., during the winter. They stopped off at Baltimore on their way to the latter point. Harry Rogers is flying the Loening Air Yacht

R. W. Alexander, president of the Flying Club of Baltimore

which he purchased from Harold Vanderbilt this summer. The other three ships were MF's with Curtiss C6 engines.

The Essington School of Aviation was represented by an MF with OX5 motor piloted by Dick Hollingshead and an Aeromarine 39B piloted by Frank Mills. On the morning of the race Hollingshead in trying to avoid a motor boat landed with one wing low and broke a strut. This seemed to eliminate him from the race but Mr. Mills head of the Essington School rose to the occasion. He flew Aeromarine 39B to the aircraft factory at Philadelphia to get a new strut. What the ship lacked in speed the pilot made up in efficiency for only four minutes were spent in Philadelphia gassing up and getting the strut aboard. As a result Hollingshead's ship was ready in good time for the race.

On the previous day the ships had been timed over a straight course. Roger's Loening made 108 mi./hr., Keddie's MF made 78.8 mi./hr., Regan's made 79.79 mi./hr., Nirmaier's made 68.9 mi./hr., Hollingshead's MF with OX5 made 63.9 mi./hr., while Mill's 39B made only 59.7 mi./hr.

The Start

According to their handicaps the Aeromarine should have started at 3 p. m. and the Loening at 3.35. As the Schneider Cup racers were still in the air the race was postponed until 3.30 or later. There was considerable confusion getting the ships lined up for the start and it was after four when the Aeromarine got off. The starting line was directly in front of the spectators and each ship was supposed to taxi

across the line when the starter dropped his flags and then take off after the line was crossed. This gave the spectators a good idea of the take off of the various ships.

The Aeromarine had made five laps and Nirmaier and Regan had caught up a full lap on it before Rogers in the Loening had even started. Once started the Loening passed the other ships as if they had been standing still but the handicap was too big and Rogers reported that his motor seemed to be overheating and that he could not push his ship to the limit. Nirmaier, the winner, flew a pretty race. At the pylons he made zooming turns which were most spectacular, in fact he made several miles an hour faster in the race than he had in the straight away.

There was a good deal of passing at or near the turns and on various occasions the rear ship would get into the backwash of the forward ship which was more fun for the spectators than for the pilots. There was practically no wind and most of the ships flew within a few feet of the water except at the turns. Due to the late start the sun had set before the end of the race and it was almost dark before the last ship crossed the line. The Aeromarine was the only ship which did not finish the race.

The Torpedo Plane Race

The race of the Douglas torpedo planes started late and though it was cut to 60 mi. the planes finished in almost total darkness. At a little distance only their tail lights and the flare of the exhausts was visible. Lieutenant McKay in the T11 finished first at a speed of 80.88 mi./hr. Lieut. W. K. Patterson came in second in the T10 at 76.38 mi./hr. Lieut. P. L. Haynes in the T8 had a connecting rod let go. A fire resulted but was soon extinguished. The T2 was also eliminated by motor trouble.

The officials of the Baltimore Navy Seaplane Races were: Maj. Wm. D. Tipton, manager; F. G. Ericson, referee; O. D. Porter, timer; Chester Ricker, asst. timer; B. Russell Shaw, executive vice-chairman of Contest Committee, N.A.A.; Carl Schory, secretary, Contest Committee, N.A.A.

Contest Committee of Flying Club: Capt. Chas. T. Phillips, Temple N. Joyce, Charles A. Masson, T. T. Perry, T. T. Hildebrant, George Cobb.

Entertainment Committee: F. G. Ericson, Chairman; T. T. Hildebrant, Temple N. Joyce.

U.S.S. Cheyenne Committee: Temple N. Joyce, chairman; Sifford Pearre, Carl D. Fenhagen, Jr.

The U.S.S. Cheyenne was commanded by Capt. John S. Fulton who extended the hospitality of his ship to the guests of the Flying Club.

BALTIMORE NAVY RECORD TRIALS OCT. 25, 1924

Specially Compiled for AVIATION *by Chester S. Ricker, Official Scorer*

Pilot	*Plane*	*Engine*	*Lap 6*	*Lap 7*	*Lap 8*	*Lap 9*	*Lap 10*	*Lap 11*	*Lap 12*
Lt. Geo. Henderson	PN7	Wright T3	76.89	78.81	79.13	79.35	79.21	79.12	77.08

Duration Record carrying 1000 kg., 5 hr. 28 min. 43 sec. Speed and Distance Record, 100 km. 77.834 mi./hr. Speed and Distance Record for 200 km. 78.507 mi./hr. Distance Record for 400 km. 78.487 mi./hr.

Pilot	*Plane*	*Engine*	*Lap 1*	*Lap 2*	*Lap 3*
Lieut. O. B. Hardison	PN7	Wright T3	66.58	70.74	66.24

Distance Record for 2000 kg.: 150 km. Speed Record for 2000 kg. for 100 km. 68.546 mi./hr.
Distance Record for 1500 kg.: 150 km. Speed Record for 1500 kg. for 100 km. 68.596 mi./hr.
Duration Record with 2000 kg. 1 hr. 49 min. 11.95 sec.

SPEED RACE FOR 500 KM.

Pilot	*Plane*	*Engine*	*Lap 1* 50 km	*Lap 2* 100 km.	*Lap 3* 150 km.	*Lap 4* 200 km.	*Lap 5* 250 km.	*Lap 6* 300 km.	*Lap 7* 350 km.	*Lap 8* 400 km.	*Lap 9* 450 km.	*Lap 10* 500 km.
Lt. R. A. Ofstie	CR	Curtiss D12	176.25	177.39	178.64	180.77	152.97	151.50	152.07	150.80	150.95	150.36

Record Speed 500 km.: 161.138 mi./hr. Record Speed 100 km.: 176.822 mi./hr. Record Speed 200 km.: 178.250 mi./hr.

3 KM. SPEED TRIALS

Pilot	*Plane*	*Engine*	*North*	*South*	*Average Speed mi./hr.*	*km./hr.*
Lt. Geo. Cuddihy	CR	Curtiss D12	185.946	188.93	187.438	301.6528
			187.977	189.665	188.821	303.8785

Speed Record, 3 km.: 188.129 mi./hr. (302.7648 km./hr))

BALTIMORE SUN TROPHY RACE

Specially Prepared for AVIATION *by Chester S. Ricker*

DISTANCE 80 MILES

6.66 Mile Course—12 Laps

Pilot	*Plane*	*Place*	*Lap 1*	*Lap 2*	*Lap 3*	*Lap 4*	*Lap 5*	*Lap 6*	*Lap 7*	*Lap 8*	*Lap 9*	*Lap 10*	*Lap 11*	*Lap 12*	*Race*
Nirmaier	MF-C6	1	67.43	75.69	76.64	77.00	77.49	77.58	76.11	77.72	77.56	76.40	77.41	75.04	76.18
Regan	MF-C6	2	65.14	74.67	73.74	74.84	74.66	75.30	74.76	76.73	73.11	75.76	75.59	75.75	74.05
Hollingshead	MF-OX5	3	57.04	64.59	64.37	64.45	64.73	62.78	64.78	64.25	64.00	63.49	64.50	63.06	63.52
Keddie	MF-K6	4	66.18	73.92	73.06	74.09	74.43	74.77	73.95	74.57	74.31	73.97	73.56	73.72	73.30
Rogers	39B-OX5		51.21	59.89	60.84	60.43	60.38	60.19	60.19	59.54	59.77	60.09	OUT		*59.25
Mills	Loening	Lib. 5	85.30	98.80	99.29	98.23	99.58	99.88	96.21	97.59	98.45	96.39	91.98	97.53	96.56

*For ten laps

TORPEDO PLANE RACE

DISTANCE 52.28 MILES

6.66 Mile Course—8 Laps

Plane	*Lap 1*	*Lap 2*	*Lap 3*	*Lap 4*	*Lap 5*	*Lap 6*	*Lap 7*	*Lap 8*	*Race*
T11	63.33	84.80	85.03	85.95	84.69	84.90	80.59	83.74	80.88
T10	70.21	90.91	87.28	80.61	83.15	66.88	69.96	61.58	76.38
T2	68.90	90.94	90.44	88.36	76.06	OUT		Average for 5 laps	81.92
T8	68.07	91.45	90.11	OUT				Average for 3 laps	76.47

NOTE: All positions are subject to change in case any pylons were fouled by contestants. Pylon Judges reports were not available when this went to press.

The Baltimore Seaplane Meet

By C. G. GREY

Editor of *The Aeroplane*, London

Baltimore is a good city and it is full of good citizens. Whether they would be considered 100 per cent good from the purely civic point of view one would hate to say, for when the stranger arrives in that hospitable place and is met by a kindly inhabitant who offers forthwith to put him next a guaranteed reliable boot-legger one appreciates the good fellowship although the Federal, State and Civic Authorities might not think so highly of the said inhabitant.

Personally was unable, unfortunately to stay long enough to need a boot-legger. The open-house hospitality of these good citizens made such a commodity unnecessary. But one did stay long enough to discover that Baltimore knows how to organize an air meet and that it has the ideal place in which to run seaplane competitions of any sort, size or description.

The Baltimore Flying Club, as its energetic President, Mr. R. W. Alexander says, "was organised by the association of a large number of our local aviators.....with the cooperation of the business men of Baltimore: The purpose of the Club is to preserve the experience of the war-time aviator, and to assist the bringing into existence of the commercial phase of aviation."

The Club seems to be doing both, with very good results. It has, one believes, the first flying field established for Reserve Aviators, Logan Field, the site for which was presented by Mr. W. Frank Roberts, the Chairman of the Club. And judging by the amount of joy-riding done by passengers in civilian flying boats operating from the shore during the seaplane meet the Baltimore public seem to be ready to indulge in commercial flying whenever the opportunity offers.

Naturally the keen edge was taken off the meeting by the failure of the British and Italian seaplanes to appear and compete for the Schneider Trophy. But apart from that the day was thoroughly enjoyable, particularly to those visitors who were really interested in sea-flying, for the U. S. Navy put up what was certainly the finest display of Naval Aviation that has ever been seen by any body of the public anywhere.

Personally one found this Naval Review highly instructive, and one would like to offer one's respectful congratulations to the Bureau of Naval Aeronautics on the excellent flying of the Navy pilots and on the obviously fine condition in which their seaplanes and engines are maintained.

It was a pity that Fate forgot to make Chesapeake Bay deep enough to accommodate ships drawing as much water as the *Langley* and *Consord*, for everybody on shore would have liked to see the famous seaplane catapult at work, with or without gunpowder, and would equally have liked to see some deck-landing. But one cannot have all one's desires in this World, especially where Naval Aviation is concerned.

Speaking, or rather writing, on behalf of the little group of British visitors—official and unofficial—one thanks both the Navy and the Flying Club of Baltimore not merely for the material hospitality which was showered upon us, but for the kindly thought and consideration which was shown to us. We were transported and escorted everywhere and were presented with the freedom of everything. The traditional kindliness of the South evidently still flourishes below the Mason-Dixon Line—not that the South has anything on the North in that respect, for one has henceforth an uncomfortable feeling that one can never repay all the kindness and hospitality that one has received in the United States.

Apropos the non-arrival of the British competitor for the Schneider Trophy (or rather the last hope of the three entries), it was announced that the sudden submarine attempt of the machine during its first test flight a week before it should have embarked for America was due to the breaking of the metal fitting at the top of the left-hand forward float strut where it joins the fuselage. Examination after its emersion showed that there was a flaw in the metal. It was also announced that work has already begun on a new challenger for the trophy. That is good news for it will give us a chance of finishing the construction of the last of the team on the boat which brings us over next year.

The place where the meet was held, at Bay Shore Park, is particularly suited to events of this nature. The long causeway, which looks like a pier and is not, makes a capital grand-stand for some ten thousand spectators and the beauty of the situation is that those who, like the folk in the Bible, "stood along the sea-shore for multitude" are inside the Park, to which they have to pay for admittance as the park and beach are the property of the street car line which runs out from Baltimore. And there is only one dead-end road to this bay, so that there is little to be seen by automobilists who hope to get a free view of the show with what our early aviators used to call "hedge tickets."

Therefore when a big contest is arranged there, it ought to be possible for the Club to make some of the money which it deserves to make as a reward for its initiative in forming the Reserve Station and for its trouble and expense in organising the Schneider competition this year. And because it deserves such a reward, as well as because Bay Shore Park is such an eminently suitable place, one hopes that the National Aeronautic Association will allocate the Schneider Competition to Baltimore next year.

The performances at Baltimore, more or less according to the programme, are described elsewhere with more arithmetical accuracy than one would care to attempt. So one need only give some general impressions. Comparisons may be odious, but it is only by comparing the flying at Baltimore with what one has seen in Europe that one can make these notes at all useful.

The U. S. Navy's pilots are distinctly of the first class. We have known what the pick of the pilots could do ever since two of them lifted the Schneider Trophy at Cowes last year. But this was one's first opportunity of seeing the average form of the rest. And after seeing English, French, Dutch and German pilots at work one was very much impressed by the Americans.

The Douglas torpedo craft got off the water almost simultaneously, kept very good formation and alighted also in good formation. Being Service pilots and not exhibition aviators they did perhaps make the mistake, from the spectators' point of view, of dropping their torpedoes too far away from the shore to be well seen by the public, and one of the two formations dropped their imitation tin-fish right in the eye of the sun so that they could not be seen at all. But they kept a nice height and manoeuvered well together. And one believes that their distance from the shore was due to their being ordered to keep away from the pier.

The newer torpedo craft, designed by the Curtiss Company are particularly neat and one is told on good authority that their performance is better than that of British machines carrying the same weight of torpedo. They have that peculiarly clean appearance which indicates the Gillmore touch and for all their size and lumpiness are evidently relatives of the racers which brought the Schneider Trophy to the States. Which seems to prove that there is something in air racing after all.

The Vought machines which gave a pretty exhibition of air fighting—and did most of it well away from the sun, where they could be seen—are also to be commended. One gathers that they were designed in 1917 or 1918, anyhow before the end of the War, and had then with the Wright E-type engine (the Hispano-Suiza type) a performance better than that of our S-E-5a. They have very nice lines and are evidently very quick on their controls and also easy on their controls—which is not the same as being quick. Considering that they were never intended to be anything more than advanced training machines they are surprising performers.

The big flying-boats of the P.N.7. class, with the new Wright T.3. engine, are merely improved F.5.L. ships. They are not beautiful, and one is inclined to believe that this type of biplane flying-boat is now obsolete and ought to be superseded. Still they fly very well for what they are. And they lift big loads for the new high-lift wings have more than justified their existence in reducing the span by 25 feet and still increasing the load carried. And the Wright engine undoubtedly gives them a performance.

As concerns flying-boats, one is inclined to think that the twin-engined type will develop rather in the direction of the Dornier "Wal." For the smaller single-engined type Mr. Grover Loening's air-yacht seems to be something near the mark for those who want a pusher-boat for the family. But for a single-engined service flying boat one recommends something more on the lines of the new very much "hush-hush" Loening Amphibian of which one has heard a great deal from observant people who have been to Mitchel Field. And one is rather inclined to think that something might be done with a racing seaplane on similar lines.

The Loening air-yacht certainly impressed the British visitors, who at the distance could not quite understand a machine which seemed to consist of a conning-tower between a pair of wings. But when it flew it went like a scalded cat.

The two racing Curtiss seaplanes (the C.R.3s with the D.12. Curtiss engines) are old friends. We learned to know and envy them at Cowes. But it was pleasing to see them in the air again and to see them as beautifully handled round the mark-tower by their new pilots as they were by their first masters. They may be beaten for speed next year, but they are not likely to be beaten for beauty of line or excellence of workmanship and finish.

One event which particularly interested the British onlookers was the parachute race. We are supposed to have parachutes in the Royal Air Force, but so far, as one knows we have nothing which performs quite as the Irving parachute does. At any rate our people do not make a habit of falling out of aircraft promiscuously into the atmosphere as do the personnel of the U. S. Army and Navy. It strikes one that it is a habit which might easily become a vice. But pursued in moderation parachuting is a good thing and it will be mighty useful in the next war.

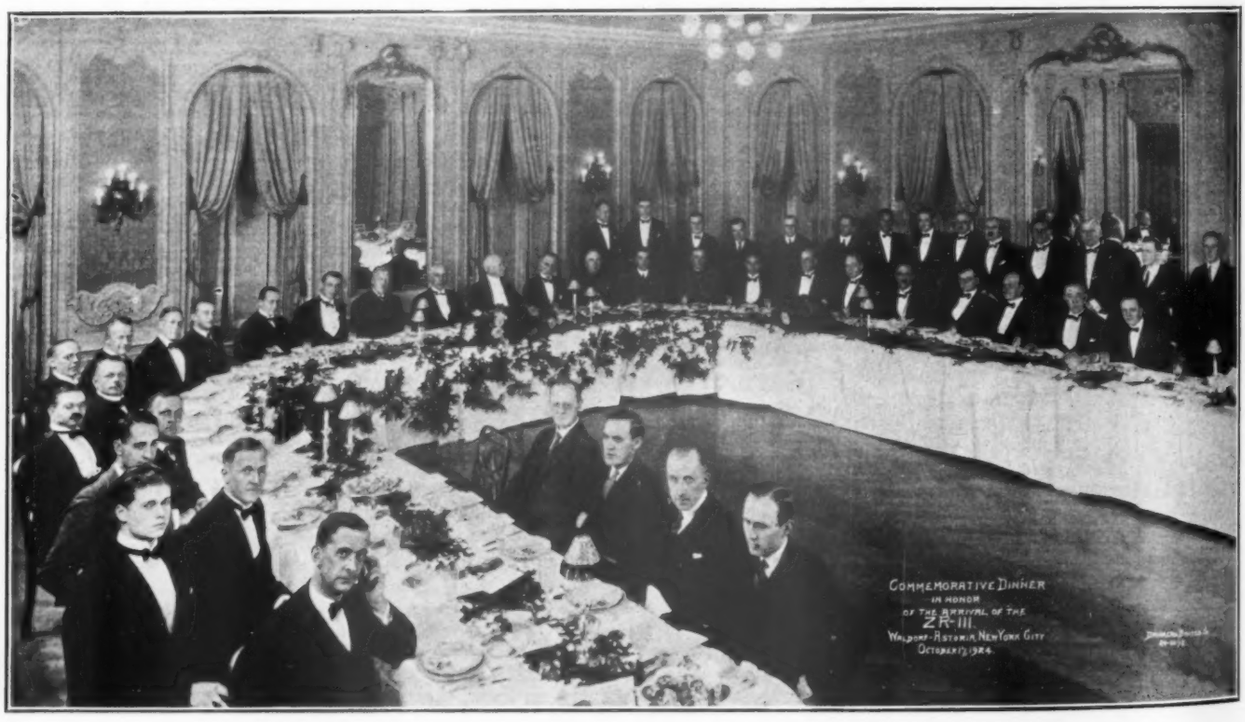
And, writing of the next war, that dropping smoke-screen was much more impressive at Baltimore than it was at Dayton. It gave the assembled thousands some idea of what a serious gas-attack delivered in like manner might be. Coming in off the water it blotted out everything as completely as the best fog London or New York could produce, and its slow rolling approach, irresistable and unavoidable, was really rather terrifying.

Altogether the whole affair was highly instructive and entertaining. And not the least entertaining part of it was the return voyage up Baltimore Harbour in the good ship *Cheyenne,* a war-ship of the *Hasbeen* class which is still useful in training the Naval Reserve. The dim forms of the *Patoka* and the *Langley* were beautiful in the semi-darkness, though one did not gain much information about the famous mooring mast of the former or the flying deck of the latter. Still, one was in the best of company, and what does a war-ship or two matter anyway ?

Incidentally, one of the most sporting features of the Schneider fiasco was the fact that the U. S. Naval Air Service refrained from sending a pilot to fly over the course and claim the Trophy. If they had done so the United States would have had two wins to their credit. As it is, from pure sportsmanship, the U. S. Navy only stands in as having won the Trophy once.

And after it was all over the ever-hospitable Mr. Alexander entertained a joyous crowd at the Country Club so long as the rules permitted, whereat one saw the feminine youth and beauty of Baltimore set off against the elegant blue and gold and white evening dress of the U. S. Navy. And very well they all looked too. One gathers that the more frivolous members of the aeronautical community had a party of their own on the roof of the Southern Hotel at Baltimore at which there were such entertainments as flourish under prohibition, including the sport of pony racing—a queer notion on a hotel roof. Apparently the ends of the two parties synchronized, for on returning to the City of Baltimore one found the exterior of the hotel still infested with the remains of the roof party—truly a merry gathering.

Altogether Baltimore did itself and its visitors very well. And one wishes well to the City's endeavors to secure the running of the Schneider Competition next year.



The Goodyear Zeppelin Commemorative Dinner in honor of the arrival of the ZR3, held at Waldorf-Astoria, New York

Army Air Service Estimates $23,000,000

Details of New Craft the Air Service Hopes to Purchase

The primary and supplementary estimates of the War Department for its Air Service call for $23,000,000, which is about $10,000,000 more than last year, Secretary of War Weeks announced a few days ago. This figure, however, does not include the pay of Air Service personnel. Between ten and twelve million dollars will be expended for new aerial equipment, he added. Hearings on the Army budget have not yet been held, and the attitude of the Director of the Budget is not known. In commenting on these figures, the War Secretary said that only what is absolutely needed was covered in primary budget figures.

Details of the plans of the Air Service for new planes and equipment seem rather meagre, but it is understood that the service hopes to purchase a number of new NBS two-engined bombers, which may be built by either Glenn Martin or Curtiss, or both. Some new pursuit (Curtiss PW8 type) planes will also be ordered, as will a few attack planes. New training planes will include some Huff-Daland TW4s and more of the Vought VE7 type. It is understood that some Fokker CO4 two-place observation ships will also be secured from the new appropriations. The Air Service also hopes to acquire some Verville-Sperry monoplanes such as recently established an average speed of 216 mi./hr.

As a special development it is probable that the Air Service will endeavor to have manufactured some small automatic controlled aerial torpedo planes, averaging around 100 mi./hr.

Government Bids and Awards

NAVY DEPARTMENT

Bureau of Supply and Accounts, Navy Department, bids opened Sept. 9:

Aircraft Materials—Class 837. Philadelphia—750 gal. marine glue—Bid 2, Aeromarine Laboratories, 262 Sweeny St., North Tonowanda, N. Y., $1.91. Bid 17, W. A. Briggs Bitumen Co., 3305 Richmond St., Philadelphia, $1.84, 30 days. Bid 37m L. W. Ferdinand & Co., 152 Kneeland St., Boston, Mass., $2.75, 60 days.

Class 884. Philadelphia—1,500 lb. brass clinch nails—No bid.

Class 885. Philadelphia—35,000 ft. steel cable—Bid 4, American Steel & Wire Co., Wilkins Bldg., Washington, 4.8c. Bid 56, Macwhyte Co., 1221 Racine Ave., Kenosha, Wis., $6.25, 30 days. Bid 74, John A. Roeblings Sons Co., Trenton, N. J., 4.9c, 30 days.

Class 886. Philadelphia—1,800 gal. spar varnish—23 bids at prices ranging from 84c to $1.62.

Class 1092. 648,000 ft. aircraft cable—Bid 11, item 17, American Cable Co., New York, $78.77; 18, American Rolling Mill Co., Middletown, Ohio, $16.02; total, $13,392.96; 45 days. Bid 20, American Steel & Wire Co., Washington, Item 17, 3.8c; 18, 1.85c; total, $12,924. Bid 160, Macwhyte Co., Kenosha, Wis., item 17, 4.4c; 18, 1.75c; total, $12,612. Bid 215, item 17, John A. Roeblings Sons Co., Trenton, N. J., 3.8c; 18, 1.8c; total, $12,624; 30 days.

Class 1093. Baldwin—245,500 galvanized thimbles Bid 215, all items, John A. Roeblings Sons Co., $1; total, $2,455; 60 days.

Photographic Material—Class 898. Eastern and western yards—17 photographic printing machines and 5 mosaic map holders—Postponed to Sept. 30.

Pilot Balloons—Bids received Sept. 8, at the bureau supplies and accounts, Navy Department, Washington, for furnishing the Navy with miscellaneous supplies under special schedules prefixed 900:

Item 1, 1,600 pilot balloons, 6 in.; 2, 800 do, 6 in.

United States Rubber Co., 1790 Broadway, New York City, items 1 and 2, 53c; total, $1,272.

* * *

Aviators Equipment—Bids are wanted on Sept. 30 by the bureau of supplies and accounts, Navy Department, Washington, for miscellaneous supplies for navy yards and stations:

Sched. 2675, Philadelphia, 312 leatherette or leathertex union flying suits.

Sched. 2676, Philadelphia, 265 aviators' summer flying suits.

Sched. 2677, Philadelphia, 350 summer and 775 winter aviators' helmets.

Sched. 2679, Philadelphia, plywood.

* * *

AIR SERVICE

Fittings—The following bids were received on Sept. 9, under cir. CAS 7, by the chief of air service, U.S.A., Washington, for 150 fitting assemblies nose drift wire:

Eberhart Steel Products Co., Buffalo, N. Y., $10.73, 120 days, 1 per cent 10 days.

Avon Tool & Machine Co., Dayton, Ohio, $8.25, 120 days, 1 per cent 10 days.

Steel Products Engineering Co., Springfield, Ohio, $6, 60 days.

G. Elias & Bro., Buffalo, N. Y., $8, 100 days, ½ of 1 per cent 20 days.

Boeing Airplane Co., Seattle, Wash., $12.60, 30 days.

Curtiss Aeroplane & Motor Co., Garden City, N. Y., 64.85c, 40 days.

Cox-Klemin Aircraft Corp., Baldwin, N. Y., $9.45, 2 months.

National Steel Products Co., Dayton, Ohio, $7.30, 120 days, 2 per cent 10 days.

Gallaudet Aircraft Corp. East Greenwich, R. I., $9.75, 45 to 60 days, 1 per cent 10 days.

Naming the ZR3

Editor, AVIATION:—

AVIATION of Oct. 13 carries the statement "The Shenandoah carries the Indian appellation meaning Daughter of the Stars. It is hoped to hit upon a name for the new air cruiser carrying out the same idea."

Permit me to recall the following lines from Longfellow's "Hiawatha":

"By the shores of Gitchee Gumee
By the shining Big-Sea-Water
Stood the wigwam of Nokomis
Daughter of the moon—Nokomis"

It would seem that Longfellow has not only supplied a musical and appropriate name, "Nokomis," but that he has also taken into account the gigantic wigwam at Lakehurst.

It seems, also, that through "Nokomis" young Hiawatha got a great deal of useful instruction in the ways of the moon and the stars and various other branches of meteorology.

LESSITER C. MILBURN
Chief Engineer, The Glenn L. Martin Co.
Cleveland, Oct. 17, 1924

Who Will Get the ZR3?

The final disposition of the ZR3, recently named the Los Angeles by Secretary of the Navy Wilbur, has not been determined, according to Asst. Secretary of War Davis. General Patrick is anxious to have the airship assigned to the Army Air Service for training purposes. Personally, and not officially, the Assistant Secretary of War is said to hope that the Navy keeps the ZR3, chiefly because of the heavy cost of maintenance and the doubtful military value of Zeppelins. General Patrick is not expected to agree with this view, however, as undoubtedly the airship would be of practical value to the Army for peace-time instruction and training, Assistant Secretary Davis believes.

Flying from an Engineering Standpoint

By GROVER LOENING
B.Sc., A.M., C.E.

EDITOR'S NOTE: *This is one of a series of lectures arranged by Prof. Alexander Klemin under the auspices of New York University. Other lectures in the program were Oct. 15, Naval Aviation: Airplane and Dirigible, by Comd'r H. C. Richardson of the Navy Bureau of Aeronautics. Oct. 22, The Air Mail Service, by Col. Paul Henderson, Assistant Postmaster General, in charge of Air Mail Service. Oct. 29, Military Aviation, by Gen. Mason M. Patrick, Chief of Air Service, U.S.A. Nov. 5, Practical Applications of the Airplane, by Sherman Fairchild, president of the Fairchild Aerial Camera Corp. Nov. 12, The Airplane in Passenger Transportation, by C. F. Redden, president of Aeromarine Airways. The Lectures were held at the University Place Presbyterian Church, University Place and East Tenth Street, New York.*

We often hear that the public is intensely interested in aeronautics, but there is clear evidence that engineers have failed to spread their technical knowledge of aviation widely enough.

There is probably no field of engineering commanding public interest today, that is less understood than that of the airplane and the airship. An opportunity, therefore to present a brief survey of the present status of aeronautical engineering, is one most welcome to all of us that are enthusiastically interested in the development of this new field, which we do not hesitate to claim is easily the most difficult and exacting field of engineering, today. Fortunately, in making these remarks, tonight, I need not give the usual excuse that this technical subject is dry or uninteresting to the public, because of the command of the spectacular held by aeronautics, and the fact that it is undeniably more exciting, more impressive, and more obviously full of fantastic future possibilities than any other branch of engineering. Human interest has been gripped by the great flying feats that follow, one after another, but the practical engineering developments that make greater and greater feats possible, year after year, are unfamiliar to the public. It might be suggested here that one of the greatest and most encouraging aspects of the automobile business today, is the remarkable general technical knowledge of motors and cars that is found today. New engineering developments of worth are instantly appreciated, and the engineers are stimulated to new efforts by a demand from the public that is most competent. The layman, let us say for example, knows that he wants motor cars for steering in a much shorter radius to facilitate parking, or that he wants less trappy bodies, or hopes to do away with the gear shift, and so on. No engineer successfully developing features of this sort need sell them. The public is away ahead, impatiently waiting.

Much the same thing is true in radio.

World Flight a Revelation

But the case of aviation is quite different. The wide interest in the great feats that are performed is largely in the spectacular side. If "The Round the World Flight" had been an easy jaunt, there would have been much less interest, but the perils faced by the fliers, the great weather hazards of storm and fog and the unknown nature of the lands through which they flew so successfully have a compelling and dramatic interest. The hardships endured and the heroism of the pilots are justifiably emphasized, but am I entirely wrong in saying that this is to the detriment of a healthy public demand for air transport, because flying is still left too much in the realm of the spectacular and remains a feat not for the layman and his wife and family—but for the hero and the dare devil ?

As a matter of fact, the World Flight from an engineering standpoint was a revelation in showing us that airplanes of the present day have a service endurance and weather resisting qualities far above what was commonly believed possible, and the machines used stood up to mooring and weathering conditions, that many boats and automobiles would have trouble equaling. But the very feature of the World Flight that makes it a convincing demonstration of the future possibilities of air travel is, that one-half to two-thirds of it was not at all spectacular, and represented a series of easy flights well within the power of the machines and motors, and easily within the scope of competent pilots and navigators.

We rarely read of the millions of miles flown by planes all over the country without a serious accident of any kind, and yet, as you know, accidents themselves hardly ever miss the front page. This is entirely understandable, of course, because the crash of an airplane to the ground is eminently spectacular and generally seen by a great many people.

As an engineer in this business, however, I submit that the public gets two aspects of aviation, which we engineers know are not true. In the tremendous featuring of the great flights that are made, the public is not made to realize that these feats are well within the possibilites of the machines that the engineers devised. Secondly, the attention to accidents gives aviation an unfair reputation for danger, which is not justified by the actual figures.

The Safety of Flying

Flying, at present, is admittedly dangerous. So is polo, steeplechasing, mining, and for that matter, the Twentieth Century Limited, and need I add that more people die in bed than anywhere else. In short, the technical people intimately acquainted with aviation are admittedly, somewhat "hard boiled," but they do know without fooling themselves that flying is not nearly as bad as is generally believed. The question has often been asked, why there is not a more general use of flying by the public, and where the blame may be placed. I do not hesitate to blame the engineers first for being slow in making those perfections which we know will make flying a "go." The engineers, in turn, blame first, the lack of available capital for development, and, secondly, some of them blame the war. Whether aviation was helped or hindered by the war, in the opinion of many engineers is a fifty fifty proposition. The technical stimulus given by a forced development of the theory of planes and motors when added to the enormous amount of flying that was done, has undeniably given us a vast technical knowledge. But what good is this, if it must remain locked up in the engineer's drafting room, because of the lack of outside understanding and enthusiastic public interest and encouragement, which the great war distinctly hindered. Because let us remember, that the war returned to this country ten thousand young men who were in the Air Service, the large majority of whom went back to their familites and friends with an impression of flying, as a shell shocking, hazardous, dangerous business with which they were so fed up, that they were through with flying and glad of it, until they were called upon in the next war. How much better would it have been if all of these same young men and their associates had known the airplane only from the standpoint of the pleasure of flying, and of its certain future in air travel due to its amazing speed and mobility, and with a feeling that the few obvious limitations which we know exist today, will certainly be overcome presently. Furthermore, engineers today recognize all over the world that the airplane as used in the war is not a practical vehicle for travel by the public. We now have air transport ideas, in addition to exclusively military ideas, and the two are quite different. We are therefore at the stage, and all engineers in this business, as well as the public, must realize it, where we are entering upon a new start in aviation, for a civilian customer is being added to our military and naval customer.

The military and naval side of aviation is fixed beyond any question of argument, and is absolutely indispensable, if not commanding. The civilian side of aviation is really in the opinion of the engineering mind just barely begun.

The intricate technical background that has developed in aviation engineering may be of considerable interest. The successful airplane of today is not merely invented on some wild idea and built as an experiment. It is as sound and complete an engineering proposition as may be found. Little does the public realize the degree to which this technical work has been carried. The engineer starts on paper to lay out an airplane, let us say, to carry a ton of load about one hundred miles an hour. He refers to assembled data, gathered in the laboratories of the entire world, on well over five hundred different sections of wing surfaces in which the lifting power and the resistance are tabulated minutely in elaborate tables. He has, at his finger-tips, literally thousands of measurements of the head resistance of various parts of a machine. He shapes the body of his plane accordingly, uses the most appropriate wing section, and formulates a preliminary design. The next step is his first check on the flying qualities. A model is made of the proposed plane to a scale about one-twentieth of full size and made with the accuracy of the highest precision tools to a thousandth of an inch. This is then placed in a wind tunnel—there are several in this country and abroad—where air traveling at forty or fifty miles an hour is blown on the model, and the model, being suspended in this air flow by fine steel wires attached to the most delicate balances, is actually flying, but flying under the control and command of an engineer who is carefully measuring the lifting power and resistance through a large range of angles. Lately we go even further. The rudders and controlling surfaces are made movable and the engineer sets them in different positions and measures the actual controlling forces on the plane to such a high degree of accuracy that he finishes up by telling you the pounds force that your man will have to exercise on the control stick in order to turn the machine in a given maneuver. And the interesting thing is that it actually does work out. And much later, when the full size machine is flown, it is amazing to find that the little wind tunnel model was a perfect fore-runner. After these elaborate tests are concluded and the various charts plotted the changes if any indicated as necessary, are made, and the engineer proceeds to start the construction. And here he starts with a vast amount of technical data on the details of beams and struts and fittings and the stresses in members, and so on; an assembly of data, which is just as impressive and as accurate and as complete as the engineers of the American Bridge Company have for their bridges, and right here, let us put down our claim that aeronautical engineering is most difficult and exacting. Remember, there can be no errors, because human life is at stake in the highest degree. Secondly, our requirement on reliability of the finished airplane is paramount. It must operate with one hundred per cent functioning of all parts, and the degree to which the reliability of the engine and the plane has been brought is very satisfactory, although capable of still very great improvement. Thirdly, the weight of the structure has a far more compelling limit for lightness than anything that man has ever set his hand to constructing. There is only one limit to the lightness of an airplane, and that is the lightest humanly possible. Never must it be forgotten in aeronautical engineering that the only reason the airplane flies, is, because it is light enough to do so. The refinements that this requirement of lightness have lead to in the engineering structures that we build are most remarkable, and way ahead of any other branch of structural engineering. For example: Is it realized that we consider it nothing extraordinary in aviation to build a wing structure, really a bridge, fifty feet span weighing only six hundred pounds which will support without failure, a load of over twenty tons. We have ribs, for example, that will support a distributed load of eight hundred pounds, without failure, and that weigh only twelve ounces, and of course, it is the lightness requirement of airplanes that has given the great impetus to the development of the new alloy, duralumin, which we find has absolutely got the strength of mild steel, and weighs only one-third the weight of steel. Aeronautical engineers now accept duralumin as a fact incapable of any further argument, and many others go even further, and wonder why so many other branches of engineering are failing to redesign their structures for the use of this material. Railroad cars, automobiles, and ships can all be lightened enormously, so much so, that many of us are inclined to believe that we are about to pass out of the steel age into a duralumin age.

The use of other light structural materials has been developed to a high degree, also. For example: The use of balsa wood which we find on test is per pound of weight, the strongest structural material known to man. It is a light wood, largely pithy, weighing only eight pounds a cubic foot, and one-third the weight of the lighest pine wood ordinarily seen, but it is so soft that we have had to learn a great deal about how to take hold of it, and curiously, where duralumin fittings are fine for taking hold of the harder woods, we find that hard wood is the best thing with which to take hold of balsa.

Figuring Out an Airplane

The engineer, therefore, with all these various materials at hand, proceeds then to construct his plane, and while he does so he keeps a weight schedule of every item that goes into the plane, for two reasons. First, in order to know that he is not exceeding the weight he has allowed for in his design, and secondly, in order to watch that all important item of balance; because the airplane in order to fly well has got to balance virtually around a pin point, so that, variations in the position of his weights that would make his machine tail heavy, or nose heavy, have to be watched with the greatest care. Finally, his plane is completed, let us assume in a thoroughly competent manner, within the weight limits specified, and correct as to balance and installation. The engineer has chosen an engine out of several available, or perhaps, has installed one of new design, and what applies to the plane on lightness and reliability applies, of course, to its engine. But here we are treating with the branch of our work, which, in the opinion of trained aeronautical engineers has suffered somewhat from its similiarity to automobile engine work, and to get into this phase of how the gasoline automobile engine has been marvelously lightened and perfected to high horsepower for the airplane, is another long story. Curiously in this development we are realizing only now that we have largely been using automobile types of motors in planes, whereas, we would have been much better off in many ways, if the highly competent automobile engineers who built these motors had only seen the airplane and not motor cars. I have recently had the good fortune to participate in a development that carries strong proof of this, in the inverting of the Liberty motor. This experience is typical of the unfortunate way that engineers will have of sticking to things that really have no reason at all. The automobile requires road clearance, and at the same time requires the lowest position for the driving shaft so as to drive straight back to the axle. Therefore, automobile engines have developed so that their cylinders and their parts are largely on top of the crank shaft. Then we come along to the development of the Liberty motor, and nobody gives sufficient attention to this fundamental so that the airplane motor proceeds along the same lines. But in the airplane we have a totally different condition, because we have to swing a big propeller ten feet more or less in diameter. That right away puts the crank shaft way up in the air, and using the automobile type of motor, the cylinders and all the works are added on top of that, so that the whole thing sets up on stilts, and the space easily available and much more convenient for the engine below the crank shaft is, from a design standpoint, sheer waste. This simple fundamental was ignored for a long time until we merely decided to turn the Liberty motor upside down and have the cylinders below the crankshaft where they belong on an airplane, thus giving immediately the maximum of propeller clearance adding greatly to the visibility and permitting much more compact and sensible designs of plane. This has been done through the efforts of the Government, and so successfully, that we are all standing around looking at each other today and marveling why this wasn't done years ago.

What applies to the general disposition of the motor applies also now to its head resistance in the design of an air-

plane motor. From now on we have got to demand a fundamental consideration of its shape and size in order to drive it through the air. Because it may interest you to know that the speed record machines going 266 mi./hr. are very largely limited in their speed by the cross section of the motor, and to show you how important that is, we have made a simple computation showing that if there were no airplane at all and the motor itself was merely flying through the air with no other resistance, that the high speed would only be increased to about 290 mi./hr.

The Builders' Reward

We return for a minute to the finished plane which the engineer has built according to the best data and with the best choice of motors to carry let us say his two thousand pounds at one hundred miles an hour. The plane is ready to fly, and right here is where the aeronautical engineer has it all over any other engineer, because I can hardly conceive of a greater thrill of satisfaction and of awe than to see your product which started on a blank piece of paper, vibrate with the roar of its motor and with a determined and surprisingly easy acceleration take off the ground for the first time, and rise majestically into the air an inspiring and convincing creation of man. The required load of a ton is then placed in the machine and behold it takes to the air and flies at one hundred miles per hour !

The engineers and the workmen who build a successful airplane are truly rewarded with an impressive sight when they see their product take to life in so thrilling a way.

For a brief moment, we now may consider, what all this elaborate engineering and the remarkably successful way in which it works out, when correctly applied, has actually accomplished. In detail this will be covered in subsequent lectures when you have heard General Patrick telling you about the commanding military side of aviation about which there is now not the slightest question. Colonel Henderson will tell you of the Post Office use of the planes. Commander Richardson will tell you of the naval side of the work, and its special problems that are so fascinating of launching airplanes from ships and landing them on the deck. Mr. Fairchild and Mr. Redden will tell you of the commercial side of the work, but from the engineering practical standpoint, many of us believe today, that the greatest thing for aviation that has been done, is the operation of the Air Mail from New York to San Francisco.

Air Travel Slow to Start

New things, like air travel is now, are very painful when they start. The railroads were just as bad. The public was just as impatient, and if you stop for a minute to think of the inconvenience of the early railroads and their trials and tribulations, and then stop to consider that air travel is in the same state today, one cannot but be convinced of the future of air travel. Fortunately, due to the Air Mail, we do not, in banking on the future, have to guess at what is going to happen, because, every morning already at eleven o'clock the winged messenger of the Post Office Department starts off in a bee line from Mineola and makes for Chicago, and the mail that he carries is transferred, as many of you may know, at various stages from one plane to another waiting along the route with their engines running and is speeded all through the night from Chicago to Cheyenne without a hitch and proceeds on its way over the Rockies, finally landing in San Francisco, thirty-five hours after leaving New York, and making the transportation of mail by railroad train look just about as silly as the stage coach must have looked when the railroad came on the scene. The service is new; the planes are capable of great improvement; the organization will learn a great many lessons, and meanwhile the Government will spend a lot of money and spending it in the greatest of all causes—a definite progress that extends the scope of the activities of the country immeasurably. Already, and only at the very start we find an amazing speed of travel and remember that speed is the only "*raison d'etre*" of the airplane. Flying is the next step in faster transportation, and because the Air Mail is forcibly proving that to us day after day, and doing so on a bigger scale than any of the much talked of European air lines you hear about, it is undeniably the greatest significant demonstration of the future of air travel that we can find.

There are many difficulties, and the engineer must recognize them. We have the weather, fog and storms, and yet the actual records show that it is amazing through what weather the Air Mail, military and other pilots will fly at the present time. I can well remember the day many years ago, when I was assistant to Orville Wright, when a high wind was considered a weather limit in which one could not fly. Today, our aviators in their high powered machines absolutely ignore the wind, so that this weather handicap is licked already. Fighting a vicious storm is largely a question of the strength and control of the plane and reducing the amount of fatigue on the pilot. We are rapidly making improvements to this end. Flying through fog is still a bugbear. We can add that traveling through fog is not any too easy for a boat or a train, or for that matter, any of you who have tried to drive a car through a thick mist know that it is distinctly uncomfortable. But the history of civilization shows that human ingenuity has never yet failed to go over an obstacle, given the time, and I do not hesitate, therefore to predict some development of either a fog dispelling system or of a special lens with polarized light, or some other fog piercing instrument which will solve this problem for us. Already, we have the development of a new compass—the earth inductor compass—which has proved a marvelous aid to the "Round the World Fliers," because it is far more accurate than the old style magnetic compass, and points the route of the plane by its relation to the earth's axis. The airplane guided by it flies through increasingly thick weather and never falters in its true direction. For the wide commercial use of planes for air travel, it is the opinion of engineers that much development is necessary which has not been needed in the military work, to which we have so largely devoted our efforts.

Suppress the Engine Noise

First, we have got to get rid of the noise of the plane. To minimize this is a great mistake. The noise is highly uncomfortable, leads to a nervous reaction both on the passengers and on the pilots, and from the standpoint of competent engineering, we must admit that it is unnecessary. It is perfectly feasible to quiet the engine of an airplane, and the realization today that we must do it will give this a quick impetus in the next few years.

Landing conditions have been operating today as a great deterrent to flying. Fields that are big enough are not provided and the airplane has largely had to remain a vehicle with no roads to ride on. New developments, however, are improving this condition daily. New designs of planes are being brought out that require less and less space to start from and alight on, and right here, we should say that the popular conception that slow landing speed solves this problem is quite wrong, since it is even more important above all things to have excellent control at landing speed in order to make safe and easy landings. We are working out controls and wing sections now, so that we will very quickly get away from the stall and spin as great dangers, because the airplane will not get out of control at any speed or angle, and will merely sink on a level keel if it is traveling below its flying speed. This one step alone is the immediate step of the next year or two that will greatly reduce the number of accidents.

The development of the Amphibian airplane which can alight on land or water alike, has been most encouraging and I consider myself fortunate to be identified with this development. We are confident that we have arrived at the point where the airplane has become a vehicle that can land anywhere, and the old distinction between the seaplane and the landplane is going to disappear entirely. Common sense alone would indicate that the airplane must be able, even when on trips in the interior of the country, to land on lakes and rivers as well as fields, and this fact alone opens up a great deal more flying, since the lakes and the rivers and the harbors already exist as fine landing fields and generally are in the heart of cities. The cross country flier with an Amphibian type has much more than doubled his available landing places in case of difficulty, and the development of a machine of this type that is the absolute equal of the land

airplane has long been the dream of aeronautical engineers as an enormous stride in greater safety and more practical usage.

Another fundamental we must realize is that an airplane, or for that matter any other air vehicle, be it a helicopter that rises straight up, or some other contraption, is mechanically suspended in the air, and if anything goes wrong it cannot be stopped by the roadside to be fixed as can a motor car. There is always, therefore, in air travel the possibility of a fall, and competent engineers in time to come, will not only realize this but will actually design the airplane so as to take a fall of several thousand feet entirely out of control with no injury to the occupants. We may, very likely, come to the development of crash proof cockpits, seating the passengers in a metal shell surrounded by shock absorbing material, so that the most complete break-down and accident resulting in the collapse and fall of a plane will absolutely ruin the plane but will hurt no one. This is merely recognizing the principal that you can buy a new plane but you cannot buy a new foot, and I venture to say, that if the railroads had not had the construction of the steel cars with their relative safety that they would have suffered greatly in volume of traffic. Given the opportunity, the encouragement, the capital, and the time, aeronautical engineers are certain to work out the obvious limitations that aircraft of today have got, and that means that the airplane of tomorrow will become a very practical and safe vehicle quite soon—meaning that the thirty or forty mile an hour world wide transportation of mail, passengers, and goods by railroad, motor car and ship will be succeeded quite suddenly by the one hundred mile an hour transportation through the limitless fields of the air.

A Real Christmas Present

By Out-of-Control

Uncle Sam isn't so stingy, after all. The Wrights fought a patent through every court for seven years and then only achieved a modest fortune, while Doctor William Christmas, M. D., of Washington, sits back through all these years, presents a claim to the government and rather than argue the matter, it pays a hundred thousand dollars—$100,000—in negotiable currency for his patents, be they good, bad or indifferent.

Just when we were counting up the royalties at the $200-a-plane rate on some 15,000 airplanes built in America which Sam admits infringe the Christmas patents, Doc up and accepts a measly $100,000, without as much as a "by your leave" of the Manufacturers Aircraft Association. However, no one has been found who will state that the price of aircraft will be reduced because of the freedom given by the Uncle Sam-Christmas deal.

Unless Uncle Sam decides to enjoin infringers, which is most unlikely, every builder can now use the ailerons without a nervous twinge. That is, every builder in the United States. There's no telling what Christmas may do abroad. He seems to be a phlegmatic soul and may wait another sixteen years, or so until the hundred thousand is gone.

Anyhow, it seems that William W. Christmas, M. D., of Washington,—and there may still remain some who remember his machine with the bowed wings and the skylight in the roof when it was flying at Mineola may years ago—filed a patent on April 22, 1910, which, in short, covers an airplane having recesses at its rear corners, ailerons movable in said recesses normally arranged in the plane of the machine, and means for simultaneously adjusting the ailerons in opposite directions respectively at an angle above and below the plane of the airplane.

And this is the system employed in the world's airplanes. The patent has never been in litigation and the question of royalty has never been discussed. Most people never even heard of the patent.

It may be that airplanes had already been built with the Christmas system prior to April 22, 1910. The second airplane of Dr. Bell's Aerial Experiment Association, the "White Wing," in 1908 had ailerons and a patent was taken out. Then there is the F. W. Baldwin patent, 1,010,842, covering sectional wings. There is the patent to Orville and Wilbur Wright, 1,122,248, which covers airplanes which employ ailerons or wing warping and a vertical rudder and a fixed vertical surface. All these are of interest.

But Doc claims to have flown with his aileron device very, very early. If the above patent is not soon enough, let us cite number 957,744, filed Oct. 30, 1909, which illustrates the same system of ailerons, though specific claims are not made.

In this he said: "In order to enable the machine to be balanced and controlled under other than normal conditions * * * I provide vertically movable planes or wings pivoted to swing vertically on horizontal axes upon the rear longitudinal bars of the plane * * Each of these leveling planes or wings is provided with upwardly and downwardly extending lever arms connected respectively with ropes or cords extending over suitable guides to a pivoted controlling lever arranged adjacent to the aviator's seat, said cords being connected to the lever on opposite sides of its pivotal point; whereby through reverse movements of the lever the plane may be swung up or down to different angular positions, so that by elevating one wing and depressing the other any tendency of the machine to tilt unduly may be overcome."

Every modern airplane uses this device,which has superseded the warping of the wing in the Wright patent. And a search of the world has revealed no claims to priority for the present type of ailerons earlier than those of Christmas.

After all, $100,000 in 16 years isn't such a grandificent sum. But what pioneer in aeronautics ever got his deserts anyhow ?

Dayton papers please copy.

Wright Corpn. Names its Engines

As a result of a recent editorial in AVIATION the Wright Aeronautical Corpn., of Paterson, N. J., in a letter to the Air Service and Bureau of Aeronautics, Navy Department, of Sept. 30, has suggested the adoption of the names of storms for their various engines and of American Indian tribes for their planes.

The editorial in question urged that American planes and engines be given names instead of the complicated and awkward designations of combinations of letters and numerals. The names chosen are:

P1, 400 hp. air cooled engine, *Wright-Cyclone.*
T3, 600-675 hp. water cooled engine, *Wright-Tornado.*
T3, 550-600 hp. marine engine, *Wright-Typhoon.*
J4, 200 hp. air cooled engine, *Wright-Whirlwind.*
L4, 60 hp. air cooled engine, *Wright-Gale.*
E4, 200 hp. water cooled engine, *Wright-Tempest.*
E4, 200 hp. standard bore marine engine, *Wright-Hurricane.*
E4, 240 hp. Special Gold Cup marine engine, *Wright Gold Cup.*
Wright Corps Observation Plane, XO3, *Wright-Mohawk.*

The letter, after stating that any assistance given the public to become familiar with aeronautical matters will benefit Government aviation and the industry at large, continues:

"It is our desire to maintain these class names for an engine as long as the bore and stroke remain unchanged. For instance, on the J, 200 hp. air cooled engine, models J1, J3 and J4 all having the same bore and stroke will be designated Wright-Whirlwind with 1, 3 or 4 after the name to designate the particular model.

"It is appreciated that this change in name must come into effect slowly and the new names could not be formally used on existing contracts without special permission from the branch of the Government concerned but it is our desire, and we believe we can expect the cooperation of your office, to gradually work into the use of these names and on future contracts it may be possible to set up the proper name formally in the contract.

"We are taking steps to have these designations copyrighted if possible and in the meantime we have communicated with the industry, asking their cooperation in giving this company the exclusive use of names of storms for our engines and names of American Indian tribes for our planes."

AIRPORTS AND AIRWAYS

Philadelphia News

By C. T. Ludington

Recent Philadelphia activities have been such as to keep your correspondent anywhere but in Philadelphia and he has just caught up with the march of events during his absence.

Probably the most interesting development has been the activity of Harold Pitcairn at his Bryn Athyn Field. J. C. Ray is with him as pilot and they have a splendid fleet of ships, consisting of two Martinsydes, three Orioles and one Farman Sport. Taxi service on a comprehensive scale is planned. Mr. Pitcairn's enthusiasm is great, and all persons connected with Philadelphia aviation activities wish him well and are confident that with his thorough methods he will obtain results of great value. Pitcairn has probably spent as much time in the air recently as any other person in the city.

* * *

The Essington Aviation School, on the Delaware below Philadelphia, is some distance away from the fields where the city's land fliers hold forth, and the aforesaid land fliers are all too prone to lose sight of the fact that their water flying colleague Frank Mills is steadily carrying on and doing most excellent work. At times when a compass, spare gas tank, or other accessory is needed in a hurry he has shown himself always able to save the situation by producing something from his large stock that will fill the bill.

The Essington Aviation School plans to send four seaplanes to Baltimore for the events that are to take the place of the Schneider Cup races. The pilot-owners of these ships are R. M. Hollingshead, and W. C. Wright in the "Elsa," Charles Walker in "Josephine," George F. Shaw in "Blue Bird" and John A. Larsen in "Famous Flyers." W. O. Ralph of New York City has just taken his pilot's certificate flying his new MF boat. Miss Wheeler of Philadelphia, the only lady student, is learning fast, and hopes to solo before winter sets in. Capt. Hugh L. Willoughby plans several long distance flights before going south.

* * *

Pine Valley is in more or less of a state of gloom over the hard luck that rode with Dewitt and Ludington in the Onto-Dayton race where difficult weather conditions held up the little Farman and spoiled what chance it had of annexing points for speed. The error in judgment which resulted in the use of the "collapsible" featherweight landing gear which so thoroughly eliminated Pine Valley's hopes in the National Cash Register Race did not tend to lighten the gloom. However, there is always next year to plan for, and Pine Valley expects to furnish some strong competition at that time.

Victor Dallin continues his successful photographic work from this field and is looking forward to greater success when his old faithful Canuck is replaced in the near future by a new Swallow. George Spratt of Coatesville is pushing forward work with his experimental ship of original design, and the two hangars are satisfactorily filled with ships at all times. A cordial welcome awaits visiting fliers at this field or at Bryn Athyn.

Portland, (Me.) News

By Dr. Albert Johnson

The organization of the Aero Club of Maine which took place at the Congress Square Hotel, Saturday evening, Oct. 11, brought to Portland several men who are prominent in the movement to increase the interest in aeronautics in the United States. Among them were Porter H. Adams of Boston, vice-president of the N.A.A., and W. H. Gannett of Augusta, Me., recently appointed Governor for the Maine N.A.A.

Mr. Adams and Mr. Gannet were greeted by several ships from the field directly across from the Union Station at Portland which circled around the train as it pulled into the yard.

Interest is booming in aviation here and fliers are looking forward to next spring when the field will be made twice as large with an increase in the number of plane owners. Three ships have been in operation and the instruction of a number of students has been going on all summer and fall.

We are fortunate in having as our chief pilot William Alexander, who served in the Naval Air Service during the war, and is known all over the country as a capable pilot. He has done more than anyone in encouraging citizens to purchase ships and in instructing them to fly. He recently returned from Pictou, having flown the Chicago Tribune photography ship from there to New York.

All pilots are invited to visit the field where they will receive the greatest welcome possible. Oil and gas are obtainable at the hangar. The field is within the city limits of Portland and not over six minutes by auto to the heart of the city.

San Diego News

By Phil Sawyer

A new record was set on Sunday, Sept. 7, 1924, for Thomas-Morse pursuit training planes, when T. C. Ryan, commercial aviator of San Diego flew a ship of this type to a height of 16,500 ft. This breaks the record of Lieut. Frank Page of this city who made an even 16,000 ft.

Cross country fliers who desire to make a trip to San Diego and are worried about landing and parking space, are hereby notified that the Ryan Flying Co. of San Diego can handle any number of ships at any time. The field is about three miles from the city, easy to locate, being noticeable by a long line of planes near the highway as you come into the city. Complete supplies may also be had, and the ships will be covered and cared for, free of charge.

The Ryan Field building department has finished another cabin Standard and put it on the line for passenger service. It went through all tests in good shape and is now "earning its keep."

When the World Fliers landed in San Diego, which in reality completed their circumnavigation of the globe, the *Los Angeles Examiner* newspaper men were on the job and chartered a fast plane from the Ryan Flying Co., which carried photographs, photographers and reporter to Los Angeles in record time. The reporter took advantage of the convenience of the cabin Standard plane, and while winging his way to Los Angeles, wrote his news story on the little desk in the cabin, in complete comfort and he said with less distraction than in a newspaper office.

Dayton News

By Maurice C. Hutton

Dayton is returning to normalcy after the National Air Races, happy in the belief that the $74,000 deficit incurred was well worth the price to the city and its industries and commerce. The official figures on expenditures and receipts from the races, made public by Frederick B. Patterson, president of International Air Races, Inc., and former head of the N.A.A., reveal that $197,000 was expended on the classic. The income derived was $123,000 leaving a deficit to be met by citizens who underwrote a sufficient fund to cover the cost.

In his statement to guarantors of the fund, Mr. Patterson wrote: "Judging from the expression of Army officers and governmental officials who attended the races, we believe that the opposition to Dayton as the point for permanent location of the research and engineering headquarters for the aircraft is absolutely eliminated.

"During the races a congressional committee visited Dayton to look into the amount of appropriations which McCook Field should receive from the government. It is possible that

committee came with the idea that the present appropriations should be decreased but we believe that the showing made here during the races and the visit to McCook Field at this time gave them an understanding of the situation, and the necessity for increased rather than decreased appropriation, that will be exceedingly helpful and effective in securing larger amounts from Congress for this work."

• • •

Maj. Frank M. Kennedy, Army observer at Friedrichshafen, Germany, during construction of the ZR3 and a passenger on the airship during the flight to America, has been assigned to McCook Field. He will report about the middle of November.

Before coming to Dayton, Major Kennedy is to spend fifteen days at Bolling Field. It is expected that he will make a report to the War Department on his observations during the last year while at Washington.

• • •

E. Dormoy, designer-builder-pilot of the "flying bathtub" reports that his unique craft is getting "better and better."

Testing a new carburetor the other evening about dusk, Dormoy landed with the report that his craft had batted off 70 mi./hr. He was so enthusiastic over the results that he now plans to give the little ship a full performance test.

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The Johnson Airplane & Supply Co. plans to turn its light plane over to the A. S. Engineering Division for a set of flight tests.

• • •

Lieut. Lowell Smith, A.S., commander of the World Flight, was examined for promotion while waiting in Dayton for orders to return to the west coast following the air races. He is next in line for a captaincy in the Air Service, officials say.

The examination was conducted by Maj. B. K. Yount, H. A. Strauss, Clinton W. Howard, Capt. J. H. Blackburn and Capt. Oliver P. Mueller.

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Readers of AVIATION who encounter a setter with black eyes that comes to attention on the word "Contact" will send a bolt of joy through the 88th Observation Squadron, Wilbur Wright Field, by flashing the word. The dog in question, now at large, belongs to Lieut. Harry H. Mills, A.S., winner of this year's Pulitzer race.

Cleveland News

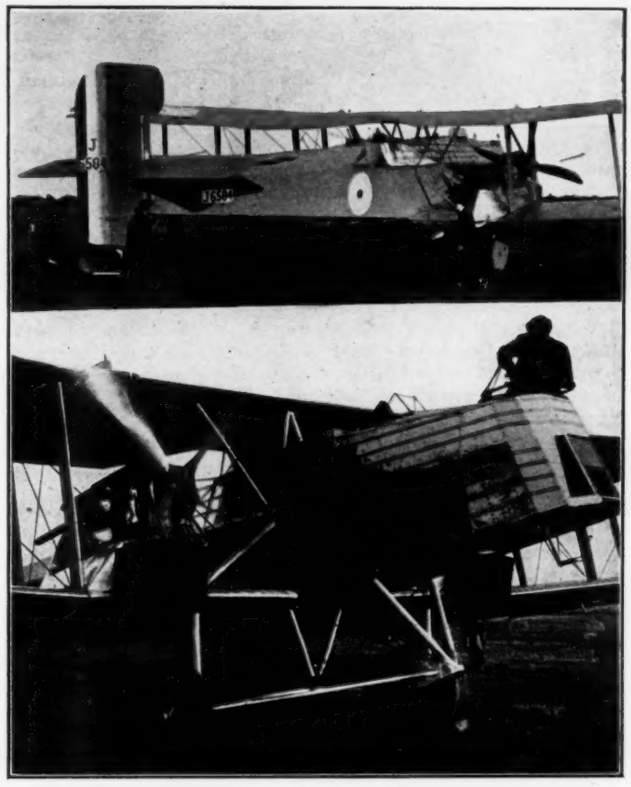
By Cy Caldwell

Richard H. Depew, Jr., Vice President, Fairchild Flying Corp., is spending a few days in Cleveland to do a little plain and fancy sleuthing—something out of his regular line, but in which nevertheless, he takes a keen interest. He is accompanied by Aerial Photographer R. A. Smith, who plays Dr. Watson to Depew's characterization of Sherlock Holmes in the strange case of the Vanished Photographs.

Briefly, the facts of this case are as follows: Leaving New York, Oct. 2, in the Fairchild photographic plane, Depew and Smith flew over Syracuse, Ithaca, Warren, Cincinnati, Dayton, Hamilton, Columbus, Marion, Mansfield and Barberton. In each city they fulfilled contracts for aerial photographs, and landed at Cleveland Oct. 13, with a case of negatives that represented eleven days' hard labor at high altitudes, and a large outlay of money.

To go from Glenn L. Martin Field to their hotel, the fliers gladly accepted a lift from a kindly stranger with a large car, and embarked with their baggage and negatives. When they got out at their hotel they removed their baggage—but Mr. Smith inadvertently left all of the negatives in the car. And the kindly stranger never came back.

Just fancy! Also imagine what Vice President Depew must have said! I wouldn't be permitted to print it here. But it must have been very, very good. And Mr. Smith probably enjoyed a new sensation and learned some new words.



Two views of the Boulton & Paul "Bolton" all-metal bomber which is equipped with two 450 hp. Napier "Lion" engines

Iola (Kan.) News

By Paul Neff

Henry King's flying circus gave a show at Fort Scott, Kan., last Sunday. He is using two Standards and two Jennies.

John Asheraft stopped over on his way from Texarkana Aviation Field, Texarkana, Tex., to Richards Field, Kansas City.

Lt. P. K. Matthews flying the Dawn to Dusk pursuit ship from Dayton to Wichita Air Congress had a forced landing at Moran, Kan., 12 mi. east of here. The motor quit him at about 1800 ft. He tried to get down in a small alfalfa field, but had too much speed and rolled into a corn field and nosed over. The ship was slightly damaged but Matthews came out without a scratch. He was trying to make Iola Field for the night.

Paul Neff is installing an overhead radiator on his sport ship.

Phil Wachtell, a local pilot, has quit flying to study law.

Detroit News

By Virgil Simmons

Eddie Stinson had capacity loads for his two round trips with both Junkers between Detroit and Dayton during the National Air Races at Dayton.

The Michigan Fliers Airport on Southfield Road has been taken over by Mr. VanOrmand. A continuance of good business is reported.

The loss of Capt. Burt Skeel is felt most deeply by both his brother officers stationed at Selfridge Field, and the Reserve Officers attached to the 1st Pursuit Group, to whom he was a true inspiration, both as an officer and as a flier.

There has been a decided increase in passenger flights at Eastwood Flying Field, and it is hoped that all the local airports will benefit through increased commercial flying during the remainder of the season.

E. G. Hamilton has been carrying a large number of passengers in his new 3-place Waco on a field near Flint. This in conjunction with his aerial photography business and cross country flights as pilot of William B. Stout's Air Pullman, keeps him quite busy.

Eastwood Flying Field of which this correspondent is manager and pilot-in-charge, has been doing an increasing business since the Fourth of July, and prospects are good for a very active fall season in passenger carrying and student instruction.

R. L. Francis, lessee of Eastwood Flying Field and president of the Central Oil Co., flew to Fort Wayne, Ind., with the writer as pilot, on Wednesday, Sept. 17, to make a speech before the Optimists Club of that city.

While Mr. Francis was placing a large order for gas pumps, with the Wayne Tank and Pump Co., complimentary flights were given to forty officers of the company in Mr. Francis' Hispano-Laird, which he uses on all his cross country trips in the promotion of his oil business.

On the return flight which was made Sept. 22, weather conditions necessitated a landing at the Bryan, Ohio, Air Park, operated by the Wallace-Woodson Engineering Co.

It is sincerely hoped that Mr. Wallace and Mr. Woodson will have occasion to fly to Detroit soon, at which time we will endeavor to return the many favors and service suggestions, which they were so willing to give.

Frank Onercashier had four ships operating at the State Fair, just closed, where he carried a lage number of passengers.

Mr. Kemp and Ted Fordon have leased a large field at 16 Mile Road and John R., where they are engaged in passenger carrying and aerial advertising. They flew to Dayton on Oct. 1 for the racing in Mr. Kemp's C6 Oriole.

* * *

Doug. Davis, who was pilot for the Michigan Fliers on Southfield Road, has begun operating with his Jennie from the Wolverine Fliers' Field.

* * *

J. W. Miller, aerial photographer, and Pat Gallup, commercial pilot, left Eastwood Flying Field, Oct. 1, for the Dayton races. They returned to Eastwood Sunday, Oct. 5 to resume commercial operations.

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The New Junker for Eddie Stinson has arrived from Germany. It should be ready for test and subsequent operation on the Detroit-Chicago Airline, in a few days.

Fort Worth, Tex., News

By Leslie E. Delf

The Kindred Flying Circus has just returned to their quarters at Barron Field after a successful tour of the Northern states. They left here last May and have played in most of the towns of over 15,000 in Ohio, Pennsylvania, Kentucky and Missouri.

The circus comprises five ships and sixteen men. They have an original Texas bucking Ford with them which they used for advertising purposes in the cities visited and for putting on a preliminary stunt at the field.

They must have stood in well with the weather men on their route as they report only one rainy Sunday in their four months tour. The ships are now in the shops being overhauled preparatory for a few exhibitions in Texas.

* * *

Jack Clark, a local oil operator, has just purchased a new Thomas-Morse Scout. Mr. Clark's oil properties are in Archer County and he finds that he can make the trip out there in 2 hr. by air where it requires 8 hr. by auto.

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Reg. Robbins is putting a Hisso in his Standard, replacing the OX5 that he has been using all summer. Reg is going in for some altitude flying and says he craves more pep.

* * *

Barron Field reports considerable through traffic during the last thirty days, some sixty ships having stopped for servicing. This field is now a municipal field and an airport on the Army Model Airway between San Antonio and St. Louis, and is in first class shape.

Mayor Accepts Aerial Map of New York

On behalf of the Board of Estimate of New York, Mayor Hylan accepted, on Sept. 29, the aerial photographic map covering the entire city ordered from the Fairchild Aerial Camera Corp. in July, 1923.

New York is the first city in the world to secure such a map for definite and practical engineering uses and the city is revealed in its most minute detail.

Two maps were made. The first includes an area approximately 400 sq. mi. within the official city limits, scale 1 in. equals 600 ft., delivered in 126 sections, each section being about 15 x 25 in. These maps at this scale are work sheets on which the engineers will study the actual conditions in different parts of the city without leaving their desks.

The second map covered an area of 625 sq. mi., including not only the city proper but portions of Westchester and Nassau Counties in New York, as well as that part of New Jersey just across the Hudson. This map is on a small scale 2000 ft. to the inch, but visualizes the city as a whole with its relation to the surrounding territory.

To photograph five boroughs, Manhattan, Brooklyn, Queens, Bronx and Richmond, of the Greater City, more than 2500 different photographs were taken. Three airplanes for months past have patrolled the city on every suitable day, flying in all over 3000 mi.

Each of the hundreds of photographs had to be brought to the same scale and carefully matched together and then rephotographed. For the past year fifteen engineers of the Fairchild Co. have been employed on this work alone.

London-Ostend-Brussels-Cologne Air Service

A good example of the efficiency and capacity of European commercial aviation services is shown by the English line operating between London, Ostend, Brussels, and Cologne, the only one touching at points in the occupied territory of Germany, according to Consul Emil Sauer, Cologne.

On a schedule of three trips per day and an actual flying time between Cologne and London of about 3½hr., an average of 3,000 lb. of merchandise are carried daily each way, Mr. Sauer reports to the Department of Commerce. Furthermore, he says the line offers two mail services per day each way and carries appoximately 40 lb. of mail each way daily. The number of passengers transported per month in each direction is about 300. The fare from Cologne to Brussels by air line amounts to £2 per trip and to London £6. Thirty pounds of baggage are carried free and only a small charge is made for excess baggage.

The classes of merchandise usually carried from Cologne to London consist mainly of cutlery, ladies' wearing apparel, particularly silk goods, ladies' patent leather and silk shoes, and surgical instruments. From London to Cologne the freight consists mainly of motor 'cycles and parts, leather goods, chamois skin, and woolen cloth. Service over this line during the regular flying season was suspended only one day as a result of unfavorable weather. No accidents have happened in its two years of existence.

Landing at Poughkeepsie

The following has been received from Harry L. Johnston of Richfield Springs, N. Y.:

"I left Curtiss Field, Friday, Oct. 10, headed due north, into the teeth of a 35 mi. gale with a Canuck. At best the progress was very slow, but the old OX was turning 1450 r.p.m. With not a field in sight for over 50 mi. just as I was about to circle Poughkeepsie at 3500 ft., there was a crash, the old ship quivered, and the prop turned no more. With that gale blowing me down the river, I was for a moment undecided as to setting her in the river or not. Then the fair grounds showed up like a bed of roses and I managed somehow to get in a cross wind without even pulling a tire off.

"Just a word about this field. Fliers, stay away from the east end of it. It looks good from above but it is fierce.

"Upon examining the motor I found that No. 2 rod on right bank had come through the case, the piston itself binding the crankshaft.

UNITED STATES AIR FORCES

U. S. ARMY AIR SERVICE

Army Air Orders

Special Orders No. 103, relating to Sec. Lt. Lyman P. Whitten, A.S., amended to relieve Lieutenant Whitten from further assignment and duty as a student at the Mass. Inst. Tech.

Sec. Lt. Donald Reuben Goodrich, A.S., promoted to grade of first lieutenant.

Lieut. Col. John A. Paeglow, A.S., designated Commandant A. S. Bal. & Air. Sch., Scott Field.

First Lieut. Neal Creighton, A.S., Scott Field, to A. S. Bal. Air Sch., Scott Field.

Sec. Lieut. Gilbert Waller, A.S. Off. Res. Corps, San Antonio, to active duty Chanute Field for three months' instruction, at the expiration of which to return home and revert to inactive status.

Sec. Lieut. Linwood Pendleton Hudson, A. S. Off. Res. Corps, Phillips Field, to active duty Wilbur Wright Field, for instruction, reverting to inactive status, Oct. 11.

Sec. Lieuts. Carl Henry Barrett and Harold Brand, A. S, promoted to rank first lieutenant.

Capt. Arthur Ernest Nesbitt, A. S. Off. Res. Corps, Washington, to active duty McCook Field, reverting to inactive status, Oct. 14.

First Lieut. Solomon L. Van Meter, A.S., Mitchel Field, for observation and treatment Walter Reed General Hospital.

First Lieut. Albert F. Hebbard, A.S., Scott Field, for observation and treatment to Walter Reed General Hospital.

Special Orders No. 203 amended to order Capt. George Ralph Gaenslen, A. S. Off. Res. Corps, to active duty Nov. 3 and to relieve him Nov. 17, when he will revert to inactive status.

Major Arnold Leaves California

Maj. H. H. Arnold, one of the pioneer aviators in the Army Air Service, who since the close of the war spent most of his time in California on duty as Air Officer of the 9th Corps Area and as Commanding Officer of Rockwell Field, was recently relieved from command of the Rockwell Air Intermediate Depot and assigned to Washington, D. C., where he is now pursuing a nine months' course in the Army Industrial School.

Major Arnold was in command of the Rockwell Depot since October, 1922, and has made wonderful improvements in the Depot since his arrival, not only in the arrangement of the shops and warehouses but in the general condition of the entire field. It is regretted by the entire personnel of the Rockwell Depot that orders were issued relieving him, as everyone feels that they are losing one of their best friends and an officer who has their interests in mind at all times.

Major Arnold was relieved by Maj. Shepler W. FitzGerald, who was relieved by the former in 1922, and as former commanding officer did much to put the Rockwell Air Intermediate Depot at the head of the list in efficiency and workmanship.

Indiana National Guard Squadron

A National Guard Squadron from Kokomo, Ind., arrived at Wilbur Wright Field, Aug. 11 for a training period of two weeks. This organization is attached to the 38th Division. It is a snappy outfit, proficient in military drills, provided with first class uniforms and well equipped with some ten or twelve airplanes which are kept in the pink of condition at all times. The officers, enlisted men and civilians at Wilbur Wright Field were well pleased with the splendid shape in which the planes and engines have been kept by this Indiana squadron.

Visitors at McCook Field

The Dayton Air Races were busy times for McCook Field. Many planes both military and commercial stopped off at the field. High officials and manufacturers visited the inner sanctums and groups of fifteen and twenty laymen were escorted through the plant by patient and courteous guides. The display of aeronautical engines both American and foreign in the "museum" aroused much favorable comment and there were many interesting old planes in various stages of disassembly stowed away in the hangars. Among the new planes which were on view was the Loening amphibian which is still shrouded in official mystery. An officer who had flown the ship gave a most enthusiastic and interesting description of its performance and construction to the fifteen or twenty ladies and gentlemen whom he was escorting. We regret that we cannot repeat what he told us but no official release has as yet been given out.

One of the new Boeing Pursuit ships was being overhauled and it certainly was a business like looking proposition, with a most interesting wing form.

The little Longren ship with its compressed paper fuselage and neatly folding wings aroused much interest especially among the commercial fliers. It is to be hoped that if the military tests prove satisfactory that ships along this line will be constructed for civilian use.

A Sperry Messenger fitted with a variable thickness wing and trailing flap was also in evidence. This ship was built for the Air Service by the Aeromarine Plane & Motor Co. A cable runs out along the front spar and turns a series of pulleys. These pulleys turn gears which raise the wing rib structure at the forward beam thickening the wing by about an inch. The action is controlled by pulling a lever in the cockpit. The trailing edge of the wings is hinged and to lower them the pilot simply reaches up and pulls them down, a ratchet device holding them in place. Nobody seemed to know just how all these appliances affected the flying qualities and the safety of the ship.

The DH with the inverted Liberty aroused much amused comment but seems to work out very well.

The exhibits in the experimental motor department were perhaps the most interesting. Here one was shown an air cooled Liberty of very neat design but the public was not informed as to its performance. A compact cam drive motor which was said to have undergone satisfactory test was also being worked on.

The prettiest piece of work on exhibition was a drive to connect four Liberty motors to one propeller. Each motor had its own disengaging device which could be thrown in or out with the little finger. The drive had just arrived at the field and had not as yet been tested as a whole but it certainly looks simple and rugged.

The out door propeller testing machine filled the visitors with wonder. A thousand horsepower electric motor turned a propeller at amazing speed, in fact one could see absolutely nothing but the noise was deafening. A Liberty in full blast would have sounded quiet by comparison. At one time they squirted water on the propeller much to the amusement of the younger visitors.

Coming around a corner one came on a plane with its propeller slowly revolving. One waited for the motor to start but nothing happened and finally it dawned on our dull brain that the wind was turning the prop and that it was not the work of an extraordinarily enduring self starter. Further inquiry revealed that the machine was equipped with a geared motor and clutch. The prop was a four bladed affair and the low speed was for take off and the high speed for extreme altitudes. The machine was also equipped with a supercharger.

U. S. NAVAL AVIATION

Naval Air Orders

Capt. George W. Steele, det. Bu. of Aero., Navy Dept.; to C. O. Nav. Air Sta., Lakehurst, N. J.

Comdr. Jacob H. Klein, det. command Nav. Air Sta., Lakehurst; to executive officer Naval Air Sta., Lakehurst, N. J.

Ens. Elbert A. Palmer, det. U.S.S. Shawmut; to U.S.S. Richmond.

Lieut. Leslie C. Stevens (CC), det. Nav. Air Sta., Pensacola, Fla.; to Nav. Aircraft Factory, Navy Yard, Phila. Pa.

Lieut. Rico Botta, det. Bu. of Aero., Navy Dept.; to Aircraft Sqd., Battle Flt. involving flying.

Lieut. Adolphus W. Gorton, det. Nav. Air Sta., Anacostia, D. C.; to U.S.S. Langley, involving flying.

Lt. (jg) John E. Shoemaker, det. Aircraft Sqdn. Sctng. Flt. Resignation accepted Dec. 20, 1924.

Lieut. John C. Adams (MC), det. Naval Air Sta., Pensacola, Fla.; to U.S.S. Langley.

Lieut. James D. Benjamin (MC), det. U.S.S. Langley; to Nav. Air Sta., Pensacola, Fla.

Lt. (jg) Samuel H. Arthur, Lt. (jg) Felix L. Baker, Lt. (jg) Charles C. Ferrenz, Lt. (jg) Silas B. Moore, Lt. (jg) Roy M. Signer, Lt. (jg) Apollo Soucek, Lt. (jg) Max Welborn, det. Nav. air Sta., Pensacola, Fla.; to Aircraft Sqds., Battle Flt., involving flying.

Lieut. Miles R. Browning, det. Nav. Air Sta., Pensacola, Fla.; to Aircraft Sqdns. Battle Flt., involving flying.

Lieut. Charles T. S. Gladden, det. Nav. Air Sta., Pensacola, Fla.; to aircraft sqdns., Battle Flt., involving flying.

Lieut. Martin B. Stonestree, det. Nav. Air Sta., Pensacola, Fla.; to Aircraft Sqdns., Battle Flt., involving flying.

Lt. (jg) Edward O. Ewen, Lt. (jg) Albert R. Buehler, Lt. (jg) Delmer S. Fahrney, Lt. (jg) Joseph H. Gowan, Lt. (jg) Frederick G. Kahn, Lt. (jg) William M. M. Lobrano, Lt. (jg) Kilburn H. Roby, Lt. (jg) George A. Seitz, det. Naval Air Sta., Pensacola, Fla.; to Aircraft Sqdns., Battle Flt., involving flying.

Lt. (jg) Merrill F. Sproul, det. Naval Air Sta., Pensacola, Fla.; to Aircraft Sqdns., Battle Flt., involving flying.

SDW Plane Makes New Records

The world's record for non-stop flight by a seaplane was broken by the long distance scouting plane SDW at the naval air station, Anacostia, D. C., Oct. 14 and 15. The plane remained in the air for 20 hr. 10 min. 10 sec., thus breaking the old official mark of 14 hr. 53 min. 44 sec. established by the seaplane CS2 at Anacostia on July 11 and 12, last. On Oct. 9 and 10 the CS2 seaplane made an unofficial record flight of 20 hr. 28 min., but as this flight was not timed by official observers from the National Aeronautic Association, the representatives in this country of the Fédération Aéronautique Internationale, the international governing body in matters of records, the flight of the SDW, which was so observed, will be submitted to the F.A.I. for authentication as the official record.

The SDW took to the air at Anacostia at 2:07 p. m. Oct. 14 and landed at 10:17 A. M. Oct. 15. Six hundred gallons of fuel, weighing over two tons, were carried by the plane when she took to the air. The SDW is powered with a Wright T3 engine of 675 hp., and is fitted up as a single control plane, so that the pilots, Lieuts. Andrew Crinkley and R. D. Lyon, U. S. Navy, had to shift places in the air when relieving each other at regular intervals during the long hours of the flight. An average speed of approximately 75 mi./hr. was maintained during the flight, making the total distance covered about 1500 mi. The flight was not designed as a speed test, however, but as a demonstration of the endurance power of the plane, a very important factor in the performance of all planes, such as the SDW, designed for duty with the Fleet at sea.

It is interesting to note that the SDW is similar to the Douglas World Cruisers used by the Army Air Service on their recent epochal around the world flight, except that the SDW has a greatly increased operating range, and is equipped with a much more powerful engine than the 400 hp. Liberty engine with which the World Cruisers are fitted.

Shenandoah on Trip to Coast

On Oct. 7 at 10 a. m. the Shenandoah started from Lakehurst, N. J., on its long heralded cruise across the American continent. Fair weather accompanied the big craft on the first leg of its journey and as she sailed majestically along she aroused much interest and excitement. The first leg of the course was to Fort Worth, Tex., via Washington, Spartansburg, S. C., Atlanta, Birmingham, Ala., and Columbus, Miss. Head winds were encountered most of the way and the ship took 34 hr. to cover the 1475 mi. to Fort Worth an average of only 45 mi./hr. The ship arrived at Fort Worth after dark but appeared to have little difficulty making the mooring mast. The big ship spent an easy night at the mast, the larder was replenished, the gasoline tanks filled and some new helium put in.

At 9:45 a. m. on Oct. 9 the ship cast off, shaping its course over ElPaso, Tex., Tucson and Yuma, Ariz., and to El Centro and San Diego, Calif. The 1336 mi. from Fort Worth to San Diego was covered in 38 hr. 55 min. The later part of the flight was purposely delayed so that the ship could land in the cool evening and would not have to valve helium to come down. While making the mast the rear car bumped and damage occurred to one of the transverse girders above the gondola strut. Repairs were made while at the mast by Lt. R. G. Mayer, repair officer of the ship.

The night trip over the Rockies was a considerable test for the ship. Near Cochise, Ariz., while flying at 7,000 ft., the dirigible barely missed a mountain ridge which loomed up out of the darkness. At other times they encountered snow squalls which weighted down the ship. Officers said that the motors functioned perfectly throughout the trip and that the ship answered the helm splendidly.

First All Metal Naval Plane Tested

The Navy's first all-metal airplane has been completed and has undergone preliminary trials at Garden City, L. I. It is a fighting plane, known as the F4C, convertible for use either as a landplane or as a seaplane. It was designed by Charles Ward Hall, prominent aircraft designer, and built by the Curtiss Aeroplane & Motor Co. under the direction and with the collaboration of aircraft experts of the Bureau of Aeronautics, Navy Department.

The plane is almost entirely constructed out of specially treated duralumin. One unusual feature of the plane's construction is the introduction of special fasteners for the canvas covering that is over the metal framework of the plane. These fasteners permit access to the inner structure of the plane at any point, thus eliminating the necessity for damaging the outer cover when it is desired to inspect or repair the structural work.

The principal advantage of using duralumin in the place of the conventional wood and wire is that a very noticeable saving in weight is obtained. This saving gives the plane a much improved performance, including greater air speed, faster climb and lower landing speed. The F4C is a development from the Navy TS1 fighting plane which has been the standard fighter of the Navy's air squadrons for some time.

The completed F4C is at present at the naval air station at Anacostia, D. C., where it is being given service trials of various kinds to determine the suitability of the plane for use in the service squadrons. The F4C is powered with a Wright J1 engine of 200 hp. and has a designed speed of approximately 120 mi./hr.

Schneider Cup Racer Destroyed

While undergoing flight trials near Philadelphia on Oct. 11, the Naval seaplane F2W plunged to the bottom of the Delaware River off Fort Mifflin. The pilot, Lieut. A. W. Gorton, escaped from the cockpit as the plane dove beneath the water, and swam to a near-by tugboat. He was uninjured.

"The plane was tail-heavy," he said, after being rescued. "It went into a right turn. I throttled the motor and was able to bring the plane around. As I did, she headed toward the water, porpoised and dove straight downward."

The F2W won third prize at the Pulitzer races in St. Louis last year in which it took part rigged as a landplane. The ship was recently fitted with floats for the Schneider race.

Death of Lt. Comdr. Dichman

Lt. Comdr. Grattan C. Dichman, U.S.N., was killed at Glendale, Calif., on Oct. 16, when his plane was destroyed by fire. His mechanic, Chief Machinist's Mate Frosio, escaped with slight injuries.

The accident occurred as the plane with two others, was taking off for San Diego on return from a test flight. It was not more than twenty-five feet from the ground when it struck a small oil pump house and crashed to the ground. Both plane and pump house burst into flames and the aviator was caught beneath the wreckage.

Commander Dichman was born in New York in 1885 and entered the Navy in 1903 from Georgia. He was detailed to the Hampton Roads Naval Air Station in 1921.

Commander Dichman was widely known throughout the service and his death cut short a distinguished and enviable career in the Naval Service. He was the first American officer to land in Europe subsequent to the declaration of war by this country on Germany. His services during the War were recognized in a special letter of commendation from the Secretary of the Navy which was transmitted on Armistice Day 1920.

Commander Dichman was one of the first twenty-five Naval officers to take up aviation duty when he was assigned to the U.S.S. North Carolina, the first naval vessel equipped to carry aircraft. His training as a Naval Aviator was received at the Naval Air Station at Pensacola, Fla.

Prominent in athletics at the Naval Academy and captain of the Navy fencing team of which he was a member throughout his term at the Academy, Commander Dichman saw varied service in all classes of Naval ships subsequent to his graduation. He was selected to command the first aviation detachment to arrive in France after the outbreak of the war and while overseas qualified as a French Naval Aviator and French Military Aviator. He commanded Naval Air Stations at Moutchic, Le Cannau and Brest. At the time of his death he was attached to the Aircraft Squadrons of the Battle Fleet.

Funeral services were held in the Arlington National Cemetery Oct. 23 and were attended by many friends and brother officers of the deceased.

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INDEX TO ADVERTISERS

A

Advance Aircraft Co. ... 1237
Aircraft Service Directory ... 1234 - 1235
American Aircraft, Inc. ... 1237
American Propeller & Mfg. Co. ... 1234
Angle, Glenn D. ... 1235

B

Bristol Aeroplane Co., Ltd. ... 1214

C

Classified Advertising ... 1238
Columbia Aircraft Corporation ... 1235
Curtiss Aeroplane & Motor Co., Inc. ... 1240

E

Ericson Aircraft Ltd. ... 1235

F

Ferdinand & Co., L. W. ... 1237

G

Gerhardt, D. Sc., W. Frederick ... 1234
Gulf Coast Airline ... 1234

H

Hamilton Aero Mfg. Co. ... 1234
Huff Daland Aero Corp. ... 1234

I

Ireland, G. S. ... 1234

J

Johnson Airplane & Supply Co. ... 1239
Johnson Motor Products Co. ... 1235

K

Kellett, Wallace Co., Inc. ... 1215 - 1238

L

Lamblin, Etablissements ... 1237
Lincoln Standard Aircraft Corporation ... 1235
Logan, Floyd J. ... 1235
Ludington Exhibition Co., Inc. ... 1234

M

Martin, The Glenn L., Co. ... 1236

N

New Jersey Veneer Co. ... 1239
New York University ... 1235
Northrop, Marvin A. ... 1235

O

Ostergaard Aircraft Works ... 1234

P

Parker, Earl K. ... 1235
Pioneer Instrument Co. ... 1234

R

Rinehart Whelan Co. ... 1234 - 1235
Roebling Son's Co., John A. ... 1239

S

Sellers, Matthew B. ... 1235
S.K.F. Industries, Inc. ... 1239
Swallow Aeroplane Mfg. Co. ... 1238

T

Tips & Smith ... 1234
Titanine, Inc. ... 1237

W

Wallace Aero Co. ... 1234
Warner, Edward P. ... 1235
Where to Fly ... 1233
Wright Aeronautical Corp. ... 1216

Y

Yackey Aircraft Co. ... 1235

Z

Zimmerman, Paul G. ... 1234

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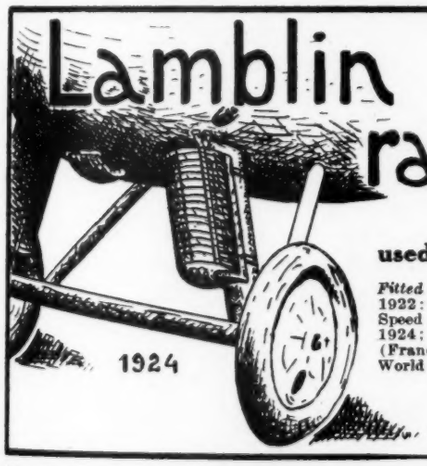

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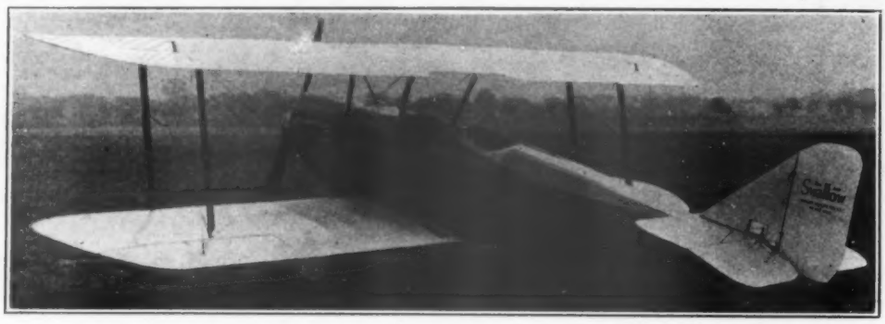

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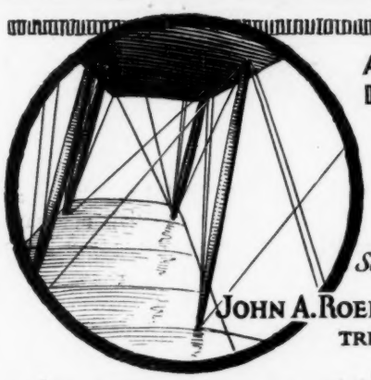

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